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OFFICIAL ORGAN OF THE NORTHWEST FRUIT GROWERS ASSOCIATION

VOLUME THREE

NUMBER NINE

U. S. Department of Agriculture DOLLAR A YEAR

# BETTER FRUIT

*March 1909*

SMALL FRUIT EDITION

IMPROVED  
SUPERLATIVE  
RED  
RASPBERRY



A NEW VARIETY AND THE  
FINEST OF ALL. OF A RICH  
CRIMSON COLOR.  
DELICIOUSLY FLAVORED  
ENORMOUS IN SIZE  
WINNER OF THE GOLD MEDAL  
AT THE LEWIS AND CLARK  
EXPOSITION

PUBLISHED BY BETTER FRUIT PUBLISHING COMPANY, HOOD RIVER, OREGON

## These Apples grew in the WHITE SALMON VALLEY



*Opposite Hood River*

Soil, climate & location especially adapted for high grade fruit & berries. Send for our *Book* descriptive of this beautiful valley

### A SPLENDID PROPERTY

No. 102—25 acres 4 miles east of White Salmon and 1½ miles from a boat landing on the Columbia river. This tract has a gentle slope to the east, and every acre is first-class fruit land with a deep, rich red shot soil. 10 acres have been slashed and burned and is ready to clear. The balance is willow, hazel, vine maple and wild cherry brush land. The view from this tract up and down the Columbia is magnificent. The possibilities of this tract for a home and commercial orchard are hard to surpass, and the price is only \$75 per acre. This is a splendid property at a bargain.

## White Salmon Land Co.

VAN VORST & WELLS, Managers, Successors to J. C. McInnes

WHITE SALMON, WASHINGTON

## Where is **ARCADIA** Located?

Twenty-two miles north of Spokane, on the Spokane Falls & Northern Railroad—

Where the soil is particularly adapted to growing winter apples.

Where there is an abundance of water from a gravity flow ditch.



ORCHARD ADJOINING ARCADIA

Where the shipping facilities are second to none in the entire Northwest.

Where you can remain in your present position while we grow a producing apple orchard for you and pay real estate taxes, etc.

Where you can buy tracts from two and a half acres up.

Where you can make the smallest cash-down terms and smallest monthly payments.

Where the closest investigation is solicited.

Investigate this before buying elsewhere. If you are interested write for illustrated booklet, it costs nothing

## GRANT & DYE

Incorporated

812-13-11 American Bank Building  
SEATTLE, WASHINGTON

JONATHANS NEWTOWNS

## THE LAND OF OPPORTUNITY



*A three-year-old Spitzenberg apple tree at White Salmon*

Located across the Columbia River from Hood River, Oregon, the White Salmon Valley offers the greatest opportunities of any land on earth to fruit growers. Where apples, cherries, pears, peaches, prunes and strawberries grow to perfection. A few dollars invested in fruit land today will return to you in a very few years sixty-fold. The soil, climate, water and scenery are unsurpassed by that of any country. Build a home where you can enjoy peace and plenty the remainder of your life. Fruit lands cleared, planted and cared for until in a bearing condition. Write us for descriptive matter and prices.

## Estes Realty & Investment Co.

WHITE SALMON, WASHINGTON

SPITZENBERGS

WINESAPS

Prunes

Peaches

Pears

Plums

Apples

Berries

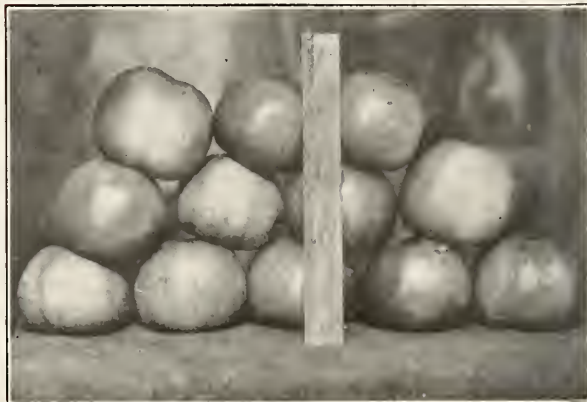
Cherries

Strawberries

Nuts

## KLICKITAT

*The land where the rain and the sunshine meet*



KLICKITAT APPLES

Klickitat County is midway between the rainy coast region and the semi-arid interior. 1800 square miles of territory, extensive timber belt, fine fruit lands, rich grain sections, good grazing regions. Pure water, rich valleys, healthful climate. Long growing season, good transportation. **CHEAP LANDS**

For Booklet Address Department B

## Klickitat Development League

GOLDENDALE, WASHINGTON

# Ortho Arsenate of Lead

ABOUT four thousand cars of apples will be shipped from the Pajaro Valley, California, this year. These apples are kept free from worms by ORTHO ARSENATE OF LEAD exclusively. Ortho Arsenate of Lead controls the codling moth and absolutely will not burn your foliage. It is the result of the codling moth investigations of the University of California, and it is today manufactured by the experts who conducted these investigations. In two years Ortho supplanted all others, and was sold extensively in the Northwest last year under the brand of the Bean Spray Arsenate of Lead.

*The  
Price  
is  
Right*

**CALIFORNIA SPRAY-CHEMICAL CO.**

BEAN SPRAY PUMP Co., San Jose, *Sales Agent*

**Watsonville**

# LIME-SULPHUR SPRAY

**NIAGARA** is the brand which has been so successfully used at Hood River, Medford, Yakima, Wenatchee, Walla Walla, Spokane and in the various other fruit districts of Oregon, Washington, Idaho and British Columbia. *Niagara* is a perfect lime-sulphur solution, clear and free from sediment. Every barrel branded with tested strength, contains all the strength of the lime and sulphur in its most active form.

## NIAGARA LIME & SULPHUR SOLUTION

is the best of all winter sprays and is meeting with approval as a summer spray to check apple and pear scab in many sections. Leading fruit growers are adopting the policy of spraying well with lime and sulphur at least once a year whether there be any particular pest to combat or not. The general tonic effect is worth all the trouble and expense. Its control of San Jose Scale is beyond question.

General Distributors of Niagara Lime-Sulphur Spray are: Portland Seed Co., Spokane; Western Hardware & Implement Co., Lewiston; Yakima Hardware Co., North Yakima; Zillah Fruit Growers' Association, Toppenish; Yakima Valley Fruit & Produce Growers' Association, Granger; Stevens County Fruit Growers' Union, Meyers Falls; British Columbia Fruit Growers' Association; Lane County Fruit Growers' Association, Eugene; Seattle Seed Co., Seattle; A. E. Crosby, Druggist, The Dalles; Malheur Mercantile Co., Ontario.

PREPARED BY

**Hood River Spray Mfg. Co.**   **Medford Spray Factory**   **Oregon Spray & Gas Co.**  
Hood River                      Medford                      Portland

*Live facts in a lively way. Live facts for men and women. Facts that affect you—your family*

## Hood River Valley APPLE LANDS

Are paying from \$400 to \$700 an acre to their owners. Many started in a small way, today they are independent. You can begin today. It pays to see us

*He who investigates for himself becomes "the man who knows"*

**W. J. BAKER & CO.**  
Hood River, Oregon

*Benton County booth won first premium at Oregon State Fair in 1907.*

## CORVALLIS OREGON

County seat of Benton County, in the heart of the famous Willamette Valley. Greatest dairy land on earth; county produces finest mohair grown; land unsurpassed for fruit, peaches, prunes and apples in particular. The best farm lands cheaper than at any place in the valley; no inflated values. Corvallis has a population of 5,000; 125 residences constructed since January 1, 1908. Oregon Agricultural College, 1156 students, located here. Purest mountain water, sewerage, electric lights, steady, healthy growth. Opportunities here worth YOUR while. Write Corvallis Commercial Club for particulars.

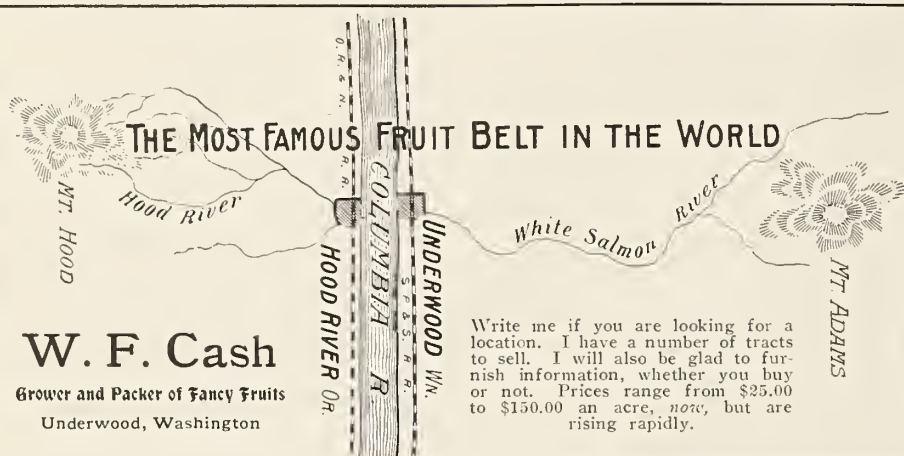
## North Yakima

*Principal City in the Yakima Valley*

Centrally located in one of the finest fruit regions of the State. Excellent home town. Headquarters for sale of bearing orchards and thirty thousand acres orchard land under new government canal. For information address

## COMMERCIAL CLUB

NORTH YAKIMA, WASHINGTON



**THE MOST FAMOUS FRUIT BELT IN THE WORLD**

Write me if you are looking for a location. I have a number of tracts to sell. I will also be glad to furnish information, whether you buy or not. Prices range from \$25.00 to \$150.00 an acre, *note*, but are rising rapidly.

**W. F. Cash**  
Grower and Packer of Fancy Fruits  
Underwood, Washington

## Irrigation is King

**The Spokane Canal Company**  
*Owners of* **Otis Orchards**

have one of the best and most attractive propositions to offer in the Northwest. Only twelve miles from Spokane. This district is particularly adapted to the growing of Jonathan, Wagners, Rome Beauties, Winesaps and Spitzenbergs.

FOR FULL INFORMATION WRITE

**E. G. TAYLOR & CO.**  
509 Fernwell Bldg., Spokane, Wash.

For Bargains in the Famous

## WHITE SALMON VALLEY

GO TO **R. FIELD & CO.**

*R. FIELD, Manager*  
*Pioneer Real Estate Dealers*  
WHITE SALMON, WASHINGTON

Have for sale all kinds of property, including fruit, dairy, timber and city property. Low prices and easy terms. All property guaranteed as represented. We can supply your every want. See our list before buying. We can save you money

The finest station on the Spokane, Portland & Seattle railway line is being built at

## KENNEWICK WASHINGTON

The North Coast railway has a big crew building its grade through KENNEWICK. The Open River Association is building two new first-class steamboats to ply on the Columbia River from Celilo to KENNEWICK. *WHY?* Because strawberries are ripe the first week in May; bring \$10 a crate and are all shipped. Because alfalfa fields are cut four times each season, and furnish the first new hay. Because the markets of Montana, Idaho and the Coast want the first fruits and KENNEWICK produces them.

**C. A. Lundy & Co.**

*Dealers in Real Estate Opportunities*  
Kennewick, Washington

## THE DALLES, OREGON

*"The Cherry City"*

**B**EAUTIFULLY located on the Scenic Columbia River just east of the Cascade Range of Mountains, where apples, pears, peaches, cherries and apricots are grown to perfection without irrigation. Choice fruit land in small tracts offered at \$50 to \$150 per acre on easy terms. Address

**THE DALLES BUSINESS MEN'S ASSOCIATION**

## HUDSON LAND CO.

The Dalles, Oregon

## Fruit, Wheat and Stock Farms

For sale in Eastern Oregon and Washington. Acre tracts in any quantity desired, with or without trees planted, within one mile of city. We are sole agents for the sale of five and ten-acre tracts in Peachland Park, which we can sell you on easy installments and care for the orchard until it is in full bearing. This is a beautiful tract of land situate one mile west and overlooking the city. The soil is a rich, deep, sandy loam, and is set out on the most approved methods to peaches and cherries. Some of the trees are three years old. Write to us for full particulars.

## THE HOOD RIVER LAND EMPORIUM HOOD RIVER, OREGON

### POSSESSES

CLIMATE—A desirable medium between the drier eastern and the more moist western conditions of the Northwest.

SOIL—Volcanic ash, rich in phosphates, and recognized as the best in the world for apples and strawberries.

Makes a specialty of real estate, conveying, loans and surveying. The president, John Leland Henderson, is a practicing lawyer residing in Hood River, and has been identified with the Hood River Valley for thirty years.

J. M. Schmeltzer, Secretary

### Hood River Abstract Company

Hood River, Oregon

ABSTRACTS INSURANCE  
CONVEYANCING

## Stop—Look—Listen HOOD, WASHINGTON

A new town, located sixty miles east of Portland, Oregon, on Columbia River, overlooking the famous Hood River Valley, Oregon. Here can be grown the small fruit, the big red apples, nuts and grasses, without irrigation. The ideal country for the man with small means. Transportation facilities are by rail and boat. Land values from \$40 to \$150 per acre. Information can be had by writing Secretary

### Hood Development Association

P. O. Underwood, Skamania County, Washington

## For Sale or Exchange FOR A FRUIT FARM

In Oregon, Southern Washington or Southern Idaho

A 12 Room Brick House and Frame Barn  
(HALLS AND CLOSETS NOT COUNTED)

With all modern improvements; can easily be converted into flats; situated on two large lots in central part of the city, one block from school houses and post office. Also 18 lots 66x132, in same city. The whole is worth \$25,000, but will close out for \$20,000.

Have a stock of furniture, carpets and undertaking goods that inventory \$12,000, in the same city, which is for sale. Ill health is cause for selling.

All located in Menomonie, Wisconsin.

Address Lock Box No. 88

## English Walnuts

AND

## Royal Ann Cherries

We are the largest owners and planters of walnuts in Oregon. Our properties are in Yamhill County, the Walnut County. We sell planted five acre tracts \$100 cash and \$15 per month with four years' care

### The Churchill-Matthews Co.

Incorporated

Lumber Exchange Building, Portland, Oregon

## MOSIER

Also called East Hood River

## FRUIT LANDS

In large or small tracts. Some very good land at low prices at present. Good growing community. Six miles east of Hood River. Parties wishing to buy will do well to write or see

GEO. CHAMBERLAIN  
MOSIER, OREGON

When you come to Portland take  
THE CORNELIUS omnibus and  
go to

## The Cornelius

Corner Park and Alder Streets, Portland's newest and most up-to-date hotel. It is sometimes difficult to make a change in hotels. However, give "THE CORNELIUS" a trial on your next visit to Portland and be happy. European plan. Rates reasonable.

Under the Management of N. K. Clarke,  
late of the Portland Hotel

DR. C. W. CORNELIUS, Proprietor

## LAND

## OF BIG, RED APPLES

WE ALWAYS HAVE SOME  
CHOICE TRACTS TO OFFER

At popular prices and sell them strictly on their merits. Years of study given to Hood River and its products. Can sell you intelligently. Call on or address

Geo. D. Culbertson & Co.

Leading Land Agents Hood River, Oregon

## Decide Now to Invest at Once in ROGUE RIVER VALLEY FRUIT LANDS

200 acres within 5 miles of railroad station. Both lake and river irrigation on the place. Land gently slopes to south and west. Unsurpassed for pears, peaches, Tokay grapes, has about 35 acres in apples now. Address

### Mountain View Orchards

Care Better Fruit Publishing Co., Hood River, Oregon

## Willamette Valley Fruit Lands

in tracts to suit. Rich soil, delightful climate. For descriptive literature write

OLMSTED LAND CO., Salem, Oregon

## HEADQUARTERS FOR CENTURY SPRAY PUMPS

Hose, Nozzles, First-class Plumbing Supplies

## C. F. SUMNER

Successor to Norton & Smith

HOOD RIVER, OREGON

# COLUMBIA HEIGHTS

The Heart of the Famous Irrigated Kennewick Highlands

A region of perpetual sunshine and mild winters, where Malaga and Tokay grapes, peaches, pears and cherries attain perfection. The land of the first ripe strawberries. The land where grows the earliest fruit of the Northwest. The land whose products bring the highest prices. This is not cheap land, but choice land cheap. There is none better, earlier or more productive in the entire Northwest.

*Sold on easy terms—only thirty-two tracts on sale—buy quick*

CHAS. F. LOTT, Owner

KENNEWICK, WASHINGTON

**Richey & Gilbert Co.**H. M. GILBERT, *President and Manager*

GROWERS AND SHIPPERS OF

YAKIMA VALLEY  
FRUITS AND PRODUCESpecialties: Apples, Peaches, Pears  
and Cantaloupes

TOPPENISH, WASHINGTON

CORRESPONDENCE SOLICITED

**RYAN &  
NEWTON Co.**Wholesale Fruit and Produce  
BUTTE, MONTANAWe have modern cold storage facilities  
essential for handling your products.  
A strong house that gives reliable  
market reports and prompt cash returns**H. WOODS Co.**  
WHOLESALE FRUITS  
and  
COMMISSION

Apples, Peaches and Strawberries

127 South Water Street  
CHICAGO, ILLINOIS**PORTLAND  
BROKERAGE CO.***Consignments solicited with quick returns*FRUITS, PRODUCE  
BUTTER AND EGGS

TELEPHONE A 5758

206 Stark St., Portland, Oregon  
Between Front and First StreetsFAMOUS HOOD RIVER  
**Strawberries**THE FINEST BERRY  
ON EARTH AND  
THE BEST SHIPPERLOOK GOOD, BUT TASTE BETTER  
*Fancy Pack Guaranteed***FRUIT GROWERS UNION**

HOOD RIVER, OREGON

**Mark Levy & Co.**COMMISSION  
MERCHANTS

WHOLESALE FRUITS

121-123 FRONT AND  
200 WASHINGTON ST.  
PORTLAND, OREGON**Levy & Spiegl**

WHOLESALE

FRUITS &amp; PRODUCE

*Commission Merchants*

SOLICIT YOUR CONSIGNMENTS

*Top Prices and Prompt Returns*

PORTLAND, OREGON

FAMOUS HOOD RIVER  
**APPLES**

Spitzenbergs, Newtowns,

Jonathans, Arkansas Blacks, Ortleys, Winesaps,  
R. C. Pippins, Baldwins, M. B. Twigs, Ben Davis*Look Good, Taste Better, Sell Best*

GRADE AND PACK GUARANTEED

**Apple Growers Union**

Hood River, Oregon

THE OLD RELIABLE  
**BELL & Co.**

Incorporated

WHOLESALE  
FRUITS AND  
PRODUCE109-113 FRONT STREET  
PORTLAND, OREGON**O. W. BUTTS**Wholesale Fruits  
and CommissionSTRAWBERRIES AND APPLES  
OUR SPECIALTYA Strong House, Pioneer Dealer  
of Thirty Years' Experience

OMAHA, NEBRASKA

IF YOU WANT TO  
MARKET YOUR**FRUIT**

RIGHT, ALWAYS SHIP TO

**W. B. Glafke Co.**WHOLESALE FRUITS  
AND PRODUCE108-110 Front Street  
PORTLAND, OREGON

W. H. Dryer

W. W. Bollam

**Dryer, Bollam & Co.**General  
Commission  
Merchants128 FRONT STREET  
PORTLAND, OREGON

TELEPHONE MAIN 2348

Underwood *and*  
Little White Salmon  
*Choice Fruit Land for Sale*I have a number of choice places for sale,  
improved and unimproved. Some with good heavy  
timber, ranging in price from \$18.00 to \$100.00  
per acre. I make a specialty of small tracts**F. W. DEHART**

UNDERWOOD, WASHINGTON

**Pearson-Page Co**131-133 FRONT STREET  
PORTLAND, OREGON

Superior facilities for handling

**PEACHES  
APPLES AND  
PEARS****Solicit Your Consignments**

Reliable Market Reports Prompt Cash Returns

**THE  
DAVIDSON  
FRUIT CO.**of  
Hood River, Oregon

Pioneer fruit packers and shippers of this famous section. "Quality" is our watchword, and "Fruit Worth the Price" is our motto. Wire or write us for apples, strawberries or pears in season in car lots or smaller shipments. Other fruits in season in less quantities.

**Ryan & Newton  
Company**Wholesale Fruits & Produce  
Spokane, Wash.

We have modern cold storage facilities essential for the handling of your products.

Reliable market reports  
**PROMPT CASH RETURNS****YAKIMA COUNTY  
HORTICULTURAL  
UNION**

NORTH YAKIMA, WASH.

*E. E. Samson, Manager*APPLES, PEARS, PRUNES, PLUMS,  
PEACHES, CHERRIES, APRICOTS,  
GRAPES AND CANTALOUPES

Mixed carloads start about July 20. Straight carloads in season. Our fruit is the very best grade, and pack guaranteed.

*We Use Revised Economy Code***Fruit Facts**

Chelan County won 35 gold medals on fruit exhibits at the Portland Exposition, 1905. This record was not equaled by any other county on the Pacific Coast. We will have 75 to 100 cars of apples: Winesaps, Spitzenberg, Rome Beauties, Lawvers, Jonathans, etc., all packed under the supervision of this association. Correspondence solicited.

**Wenatchee Valley  
Fruit Growers' Association**

WENATCHEE, WASHINGTON

M. O. TIBBETTS, President E. T. BALCH, Secretary

**LINDSAY  
& CO. LTD.**

Wholesale Fruits

HELENA, MONTANA

*Established in Helena Quarter of a Century*Branch houses: Great Falls, Montana;  
Missoula, Montana; Billings, Montana.*If you want to know about*  
**OREGON**

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**The Chamber of Commerce Bulletin***A Monthly Commercial Publication of Merit*

Official organ of The Portland Chamber of Commerce, the leading and most influential commercial body in the Pacific Northwest

SUBSCRIBE NOW, \$1.00 PER YEAR

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**ROGUE RIVER VALLEY**Famous for its APPLES, PEARS, PEACHES,  
GRAPES, MELONS AND CLIMATE

THE natural home of the Spitzenberg and Newtown apples. Rogue River pears have led the United States for past five years in the highest price in the New York market. No peaches of the South excel those of Rogue River, and trees are healthy. Grapes perfection in color and flavor and the best of shippers, and growers have more orders than they can fill. Rogue River cantaloupes, water-melons and cassabas, none better and big money makers. The Rogue River Fruit Growers' Union gets the highest price for fruit, and the Southern Pacific gives terminal rates on shipments East. Climate the perfect medium between arid California and webfoot Oregon. No storms or winds to injure fruit crop. Almonds and figs ripen perfectly and palms grow in the yards. Land yet cheap, but will double in two years. American community and good schools, rural mails, telephones, etc. Full information by addressing CHARLES MESERVE, Medford, Oregon, Seller of Real Estate in All Parts of Rogue River Valley. References by permission: Rogue River Fruit Growers' Union, First National Bank of Medford.

**DAVENPORT  
BROS.****WHOLESALE  
FRUIT &  
PRODUCE**

Growers and Shippers of the Famous

**Mosier Valley Fruits**  
Portland, Oregon**D. CROSSLEY & SONS***Established 1878***APPLES FOR EXPORT**

California, Oregon, Washington, Idaho and Florida fruits. Apples handled in all European Markets. Checks mailed from our New York office same day apples are sold on the other side. We are not agents; we sell apples

**200 TO 204 FRANKLIN STREET, NEW YORK**

LIVERPOOL

NEW YORK

BOSTON

GLASGOW

## The Finest Apples In the Whole Wide World

*Are Grown in the*

Hood River Valley of Oregon

*Are Packed by the*

Hood River Apple Growers' Union

*and are sold by*

## Steinhardt & Kelly

The Largest Operators in High-Class Fruits in the World

101 Park Place

New York



### THE EMPIRE LINE

In the Empire Cream Separator you get the leader of hand power machines, as it is pronounced by the Experiment Stations to be the lightest running machine made, a very close skimmer, easy to clean, simple and durable. In the Empire Engine you get one of the most simple manufactured.

1 1/2 H. P. only \$75. Send for catalogue today

Empire Cream Separator Co., Ltd.  
94 North Sixth Street PORTLAND, OREGON

## The Hood River Electric Light, Power & Water Co.

DOING A GENERAL ELECTRIC  
LIGHT AND POWER BUSINESS

TWENTY-FOUR HOUR SERVICE

City Water Works System for Domestic and Municipal Use.  
Are prepared to furnish 3000 Horse Power, either  
Electric or Water, at Reasonable Rates

General Office, HOOD RIVER, OREGON

# APPLE LAND JUST PUT ON THE MARKET

Write to or call on Frank Davenport, Hood River, Oregon

If you want to buy good apple land in Hood River County, not over six miles from the City of Hood River, West. I have 1800 acres to sell cheap in lots and prices as follows:

160 Acres at \$35.00 per Acre

160 Acres at \$30.00 per Acre

160 Acres at \$25.00 per Acre

480 Acres at \$20.00 per Acre

320 Acres at \$15.00 per Acre

520 Acres at \$10.00 per Acre

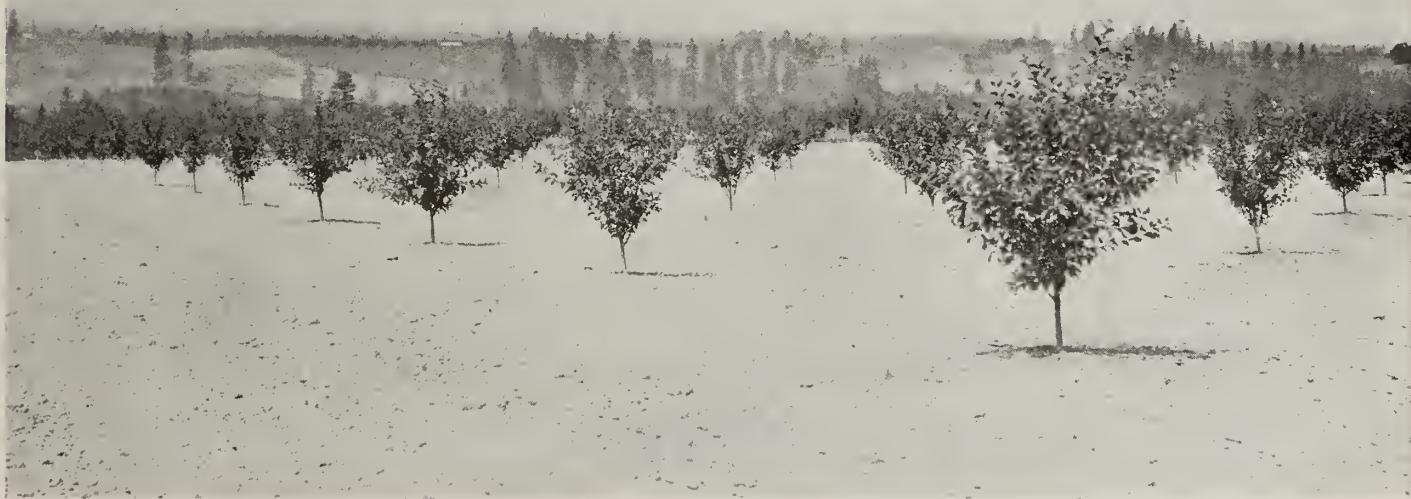
This land has water on every 160 acres, and land joining this on the east can not be bought for less than \$225 per acre. Will not sell this land in lots of less than 160 acres.

*Terms:* Half cash, balance long time at six per cent

# HOOD RIVER

## OREGON

*Greatest Apple Growing Valley in the World*



*Near view of four-year-old orchard, showing plan of setting trees and system of clean cultivation to conserve the moisture  
Hood River, Oregon*

Where fruit pays from \$500 to \$1500 per acre and is marketed for you at the highest prices paid anywhere in the world, while still on the tree. Forty thousand acres of finest apple land still undeveloped. One hundred thousand horsepower going to waste in its streams. Population, 6000; value fruit products, 1907, \$400,000; value lumber output, 1907, \$750,000; taxable property, \$2,700,000; bank deposits, 1901, \$36,000; 1907, \$690,494.31. Railroad and water transportation. Two hours from Portland, twelve hours from Seattle and Spokane. Rural mail delivery. Phone service covering city and valley. Let us tell you about it.

DO IT NOW—TO-DAY

ADDRESS

Publicity Committee Hood River Commercial Club  
HOOD RIVER, OREGON

# NOW IS THE TIME TO VISIT California

WHEN summer has passed in these northern states, the sun is only mild under the bright blue skies of Southern California. This is one of nature's happy provisions—eternal summer for those who cannot endure a more severe climate. California has been called the "Mecca of the winter tourist." Its hotels and stopping places are as varied as those of all well regulated cities. Visitors can always find suitable accommodations, congenial companions, and varied, pleasing recreations.

## Southern Pacific Co.

Will be glad to supply some very attractive literature, describing in detail the many delights of winter in California.

The rate from Portland to Los Angeles and return is

**\$55.00**

Limit six months, allowing stop-overs in either direction. Similar excursion rates are in effect to other California points.

*For full information, sleeping car reservations and tickets, call on, telegraph or write*

**WM. McMURRAY**  
GENERAL PASSENGER AGENT  
PORTLAND, OREGON

## Growing Fancy Apples in HOOD RIVER *Profitable, Enjoyable, Healthful*



HOOD RIVER ORCHARD IN BLOOM, GIVING PROMISE OF GOLDEN RETURNS

### *Break away from your office and get back to nature*

**N**o restless nights when your competitors cut prices.  
No worries over bad accounts.  
No parasites but what can be killed.  
No fires, no insurance.  
No question about selling your crop.  
No failures in Hood River.  
Nothing to do but work and enjoy life.  
Can you think of a more delightful occupation?  
Your boys will make better men and your daughters better women if they are brought up among the delightful environments that Hood River affords.

### DON'T DELAY ANY LONGER

Now is the time to make the change. Write us today for list of Orchard Farms, City Property or Investments

*We make a specialty of the best class of properties and give only reliable information*

**J. H. Heilbronner & Co.**

*The Reliable Dealers*

Davidson Building

Hood River, Oregon

# BETTER FRUIT

A MONTHLY ILLUSTRATED MAGAZINE PUBLISHED IN THE INTEREST  
OF MODERN AND PROGRESSIVE FRUIT GROWING AND MARKETING

## HOW TO GROW GREAT CROPS OF STRAWBERRIES

BY FRANK E. BEATTY OF R. M. KELLOGG CO., THREE RIVERS, MICHIGAN, GREATEST STRAWBERRY PLANT NURSERY IN THE WORLD

**T**O enrich the soil for immediate use, manure the ground if possible in winter. Spread over the entire surface. In the spring plow the manure under and thoroughly work it into the soil. If for any reason this work may not be done in winter or the early spring, then spread the manure after the ground has been plowed and work thoroughly into the soil before setting the plants. Should anything prevent this, the manure may be spread after plants are set. In this case scatter thinly between the rows, following as soon as possible with cultivator, which will mix the manure thoroughly with the soil. If manure may not be secured, plow the ground in the spring and harrow over once; then drill or scatter over the entire surface some complete fertilizer.

**Acid or Sour Soil**—Should your soil be sour or somewhat acid, drill in 1,000 pounds of agricultural lime to the acre, and work thoroughly into the soil with harrow. We purchase our lime from the Ohio and Western Lime Company, of Toledo, Ohio. We have no interest but yours in giving this address, save to make correspondence unnecessary. Or two hundred bushels of hardwood unleached ashes, per acre, applied in the same way, will serve the purpose. In fact, we prefer the ashes to lime on account of the large percentage of potash they contain.

**Preparing Soil**—Plow just as early in the spring as your soil will permit. Early plowing saves many tons of moisture. Pulverize the soil as soon after plowing as possible—the same day it is plowed is the best. The harrowing and fining of the soil will lock up and hold the moisture for use of the plants. Harrow the soil repeatedly until there is a mellow bed to the depth of the plowing. If the soil be sandy loam, or of loose character, run the roller over it until it is firmly pressed. If the soil

is of clay or rather firm texture, roll very lightly, just sufficient to press down the surface. But no matter what the texture of the soil, there must be no clods. The finer it is pulverized the more sure will be victory.

**Marking for the Rows**—For this work use a light tool of some kind—something that will make a shallow mark, or merely an indentation in the soil, not a furrow. If horse cultivators are to be used, make rows forty-two inches apart and set plants twenty-eight inches apart

bisexuals of earlier season than the pistillate; then three rows of the pistillate; next, one row of bisexuals of later season than the pistillate. In other words, place three rows of pistillates between two rows of bisexuals of different seasons.

**Pruning and Setting**—Before setting the plants, cut the roots back, leaving them from four to five inches long in the case of dormant plants. But should you defer setting until late in the season, when the plant has started new feeding roots, then merely cut off the tip ends of the roots, just enough to even them up. In setting, spread out the roots fan shape, place them straight down in the opening, hold the crown of the plant above the surface of the soil (see Figure 1.) Press the soil firmly against the roots and draw the soil around the plant so that the crown will come just above the surface. (See Figure 2.)

**Preventing Pollen Exhaustion**—Pinch or cut off all fruit stems on spring-set plants before buds open. Never permit a plant to bear any fruit the same season in which it is set, unless you are in a climate where strawberries bear in the fall. In such a locality spring-set plants may safely be permitted to bear in the fall.

**Cultivation**—Cultivate same day plants are set if possible, and follow soon after with hoe and loosen the soil around the plant to the depth of one inch. Cultivate every eight or ten days, and after each rain as soon as soil is in condition. When plants start making runners, have the cultivator tooth next to plants one inch shorter than the other teeth to prevent cutting roots. Keep plants free from weeds. Don't let runner plants set closer than six or eight inches to each other. Each plant must have ample room in which to build up its fruit-bud system, and all the roots must have room in the soil from which to feed. Keep soil

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in the row. Make rows straight in both directions and cultivate both ways until runners are well started. If hill system is to be followed, make rows thirty inches apart and set plants twelve inches apart in the row. If plants are set for home use, or for hand cultivation, and ground is limited, put plants in checks twenty-four inches apart each way. Cultivate both ways until runners are ready to layer; then place runners in direction you wish to have your rows run. Where plants are grown so close, they must be grown in either single or double-hedge rows. If ground is very limited in area, use hill system and put plants fifteen inches apart each way, leaving a two-foot path every three rows for the pickers to walk in. This will make a path every three rows, so that the berries may be picked without trampling the vines.

**Mating or Pollenizing**—Pistillate or female varieties should never be set without bisexuals (male) varieties being set alongside of the females. If some pistillate is your favorite, and you wish to make it your leader, set one row of



The spots on this leaf are caused by rust spots. Bordeaux mixture is a preventive

This leaf shows the effect of leaf-chewing insects. All insects of this nature are destroyed by arsenates



Shows effect of mildew

Shows effect of leaf roller



THOROUGHBEREDS IN PATCH OF J. B. KOUPAL, WEST POINT, NEBRASKA

around young plants loosened with a hoe; never allow crust to form around the plants.

**System of Growing**—If plants are grown in hills no runners should be permitted to set. Cut off all runners under the hill system before young plants form. For the single-hedge system allow each mother plant to make two runner plants. For double-hedge each plant should make from four to six runners. For narrow-matted row runners

may be set until plants stand from twelve to fifteen inches wide in the row. But bear in mind that plants must in no case crowd one against the other. Whatever system you follow, single - hedge, double - hedge or narrow-matted row,

all surplus runners should be cut or pulled off after the number of plants required have been set.

**Spraying**—Fortunately there are few enemies of the strawberry. However, it is sometimes necessary to spray. Any insect that eats holes in the plants, or weaves a web in the leaf, like the leaf-roller, is called a leaf-eating insect, and their operations may be checked by the use of arsenates. And if the leaves of

the plants show spots or signs of curling it is evident that a fungous disease—rust, blight or mildew—is present. Either of these may be prevented by the use of bordeaux mixture. (For formulae, see "Leaf-Chewing Insects and Preventives.")

**Mulching**—Late in the fall, when growth ceases, and following the first light freeze, cover the plants and the ground between the rows with mulching material. Wheat, oat, buckwheat or rye straw, marsh hay or coarse stable manure—any of these will serve the purpose. Millet, if cut when in bloom, also will serve as mulch; so will sea-grass. In the South, where it is unnecessary to cover the vines themselves, pine needles make an excellent material when put around the plants to keep the berries clean. Leave mulching undisturbed until growth starts in the spring, at which time part the mulch directly over the rows and let the plants grow up through the opening. If at any time during the fruiting season growth of weeds or grass starts among the plants or between the rows, pull them up directly after a rain, or cut them out with broad, sharp hoes, scraping the blade on the surface of the earth just under the mulching.

**Picking, Packing and Marketing**—If fruit is sold near home, allow berries to become fully ripe. If fruit is to be shipped a long distance, pick the fruit under-ripe. Let the distance the fruit is to be shipped govern the degree of ripe-

ness. Don't pull the berries, but pinch them off, leaving a short stem on each one. When picking the berries, handle them as lightly and as little as possible. Don't pick when the vines are wet unless absolutely necessary. Grade berries while picking, putting fancy fruit in separate boxes from the No. 2 grade. Be sure to have the berries the same on top and bottom of the box. Arrange top layer evenly and attractively. Pack in clean, neat boxes, and use full quart measure. Clean crates also should be used. Label each crate of fancy fruit. Make arrangements for marketing before the berries are ripe.

**Renewing Old Bed**—After fruit is picked mow off the vines. For this work the hay mower, the scythe or the sickle may be used, depending upon the implement available.

Cut the vines close to the ground. When dry, loosen mulching with fork or hay tedder, then burn over the entire field, unless rain comes after plants are cut and new growth starts before the refuse



FIGURE 1



R. M. KELLOGG COMPANY'S NEW DEVICE FOR CUTTING RUNNERS

becomes dry enough to burn. In such a case do not burn, but rake up the mulching, and all other refuse, in piles and haul away. After burning or cleaning off the patch, cut a furrow from each side of the row. After this cultivate with five-tooth cultivator; then cross the rows

with weeder or spike-tooth harrow. These tools loosen the soil in the rows and draw soil over the crowns of the plants. After this cultivate the bed the same as in the case of newly-set plants. You will observe that we recommend that the crowns of old plants be covered with soil after burning over and rows are narrowed down. This is because the roots of the old plants have become wiry and almost useless, and in order to encourage a new



THE SINGLE-HEDGE ROW

Is formed by allowing enough runner plants to set to make a continuous line of plants, and is a splendid method to follow.

root system it is necessary that the crown be barely covered with fine soil. In the case of newly-set plants the roots are young and full of vitality, and from these will start feeding roots.

**White Grub**—After the white grub once attacks strawberry plants about the only thing to do is to dig down to the roots, find the grub and kill him. The wilting of the plant indicates that the white grub is at work on the roots. Generally this is too late to save the particular plant, but by killing the grub you prevent his further ravages. The underground habit of the grub makes it difficult to control, and for this reason we make suggestions which, if carefully followed, will protect you from its depredations. Avoid setting strawberry plants in freshly plowed timothy sod. The white grub delights to feed on the wiry roots of timothy. Blue grass and clover sod seem to be free, practically, from these pests. We have set many acres of



SIX-WHEEL MARKING DEVICE

Six iron wheels placed upon a section of gas-pipe, to which are attached gas-pipe shafts. Wheels are held in place on the gas-pipe by lugs or heavy washers, and these are fastened to the gas-pipe by set screws. By loosening the screws the spaces between wheels may be gauged any desired width.

strawberries in the spring on clover and blue grass sod which had been plowed the previous fall, without experiencing any difficulty with the grub. Do not use manure which has lain in piles throughout the summer. Just such places is where the May beetle and June bug deposit their eggs, from which the grub is hatched. It will be safe to use such manure, however, if it is hauled out and spread over the ground during hard-freezing weather. Hogs and fowls given free access to the manure, and allowing them to follow after the plow when breaking up the ground, will prove helpful, as they are very fond of grubs and other underground insects. Fresh manure is safe to apply at any time, so far as the white grub is concerned. Frequent rotation of crops and fall plowing also are



PACKING KELLOGG'S THOROUGHbred PLANTS FOR SHIPMENT

The first operation is the placing of damp sphagnum moss in the bottom of the box; then layers of plants alternating with layers of moss until the particular order is filled.

preventives against grubs, and the more fowls that follow the plow the better.

**Black Ants**—The black ant itself does no particular injury to the strawberry, but their presence is an indication that the aphid (lice) is at work on the roots of the plant. The ants carry the lice from the roots of one plant to another, and while the lice suck the juice from the roots and tender parts of the plants, the ants stay close by to get the honey-like substance given off by the lice. Thorough cultivation will drive the ants to other quarters, as they do not enjoy working in freshly stirred or loose soil. Neither do they like to be disturbed in their work. By chasing away the ants you also rid your fields of the lice, as they cannot by themselves travel from plant to plant. In fact, thorough cultivation aids to discourage all kinds of insects, which adds another important item in favor of cultivation.

#### Leaf-Chewing Insects

Whenever holes appear in the leaves of the strawberry plant you may know that some leaf-eating insect is present, and the plants should be sprayed at once with arsenate of lead. Formula: Take three pounds of arsenate of lead and pour over it enough water

to barely cover. Then crush the lead with a small mallet until it is thoroughly dissolved, gradually adding more water until about two gallons have been made. To this add enough water to make fifty gallons. One spraying usually will put the insect out of business.

Or, take ten ounces of paris green and over it pour enough water to make a paste; when thoroughly "pasted" take two pounds of lump lime in a separate vessel over which pour two gallons of hot water. When slaking stir to prevent burning. When the lime is slaked, combine this solution with the paris green paste. Stir until thoroughly incorporated and then add sufficient water to make fifty gallons. The lime neutralizes the acid in the paris green, and thus prevents the burning of the foliage. Either of the poisons will



FIGURE 2



R. M. KELLOGG COMPANY'S NEW METHOD OF MARKING OUT THE ROWS

After we get the cowpeas, manure and soil thoroughly incorporated and pulverized to the depth of the plowing, we proceed to prepare for the marker. First goes the heavy steel roller, weighted down with big stones; following the roller is a leveling device which breaks up the smooth surface left by the roller and fills in the horse tracks and all other uneven places. This in turn is followed by a regular corn-planter, which makes the marks exactly four feet apart, and leaves a slight rise on the surface. After the field is marked in this way we go "crossways" with a six-wheel marker, with wheels twenty-eight inches apart. The plants are set at the intersection of the lines, which places them four feet by twenty-eight inches apart, allowing ample space to cultivate in both directions until runners start



THE DOUBLE-HEDGE ROW

kill the insects, but we prefer the arsenate of lead. Either of these solutions may be used in combination with bordeaux mixture.

The leaf-roller is a small, brownish caterpillar, hatched from eggs laid by a reddish-brown moth. They fold the leaf by bringing the upper surfaces together and fasten them with a silken cord. Usually there are three broods each season. The first hatches early in May; the second the latter part of July, and the third in September. If spraying with arsenate of lead or paris green is thoroughly done before the leaves are folded together, it will prevent any damage from the roller. Burning over the fruiting bed after berries are picked is a great preventive.

When you observe rust spots appearing on the leaves of your plants it is a warning of the presence of rust. At first sight spray with bordeaux mixture. Formula: Put four pounds of blue vitriol into a coarsely woven sack; put twenty gallons of water in a barrel; fasten the sack so that the bottom of the sack containing the vitriol will rest upon the surface of the water. This will allow the air to come into contact with the vitriol and it will dissolve very quickly. Now put four pounds of lump lime into

another barrel, over which pour enough hot water to cover. When slaking, stir to prevent burning, and when thoroughly slaked add enough water to make twenty gallons. When the vitriol and lime water are combined you have the bor-

deaux mixture. The very poorest soil could easily contribute its small percentage to plant growth if the air would furnish the rest.

This might be true if the roots and leaves and soil and atmosphere were not

mixture and spray with the combination. When the leaves are affected with mildew they curl or roll up as though suffering for moisture. At first sight spray with the bordeaux mixture.

#### How Plants Feed

When we stop to consider that more than 95 per cent of a strawberry plant is made up from the elements of the atmosphere, we then wonder why such ideal soil conditions are of such great importance. If the atmosphere furnishes such a large percentage of the plant's development, then why is it necessary to give any thought to soil



BISEXUAL (MALE)

PISTILLATE (FEMALE)

BISEXUAL (MALE)

These are the kind of blossoms produced by Kellogg's Thoroughbred plants. Well developed plants build up strong fruit-buds, which insure well developed blossoms with healthy pistils and large anthers, which furnish an abundance of fertile pollen. Note the flowers in the above illustration of the bisexuals and see the large center cones and the powerful anthers surrounding them. Such flowers, supported by strong plants, insure big crops of perfect berries

deaux mixture. But do not combine until ready to use. Bordeaux mixture is a preventive for all leaf spots and mildew. If you have leaf-eating insects at the same time, you may add either paris green or arsenate of lead to the bordeaux

so much dependent one upon the other in order to get these percentages. The soil must be in a condition to make the bacterial germs comfortable and to hold moisture to dissolve the soil materials. Under such conditions these little micro-

organisms will properly prepare and separate the mineral matter from the soil which goes to make up the three to five per cent of the plant.

When this so-called plant food is properly prepared, it is absorbed by the roots; this crude material which is taken in by the roots, passes upwards into the body of the plant; from there the elaborated materials are redistributed through all parts of the inner plant.

While the roots are absorbing the substance in solution, the leaves of the plants are absorbing gases, chiefly carbon dioxide. From this invisible source the plant derives its carbon, which makes up nearly half of its entire weight aside from the water.



THE NARROW-MATTED ROW

Plant-food materials taken in by the roots and leaves cannot be used directly in the making of plant tissues and in contributing to growth. They must be worked over or formed into organic compounds. This process of elaboration takes place in the green parts, chiefly in the leaves, and in presence of sunlight. When the food has been elaborated it can be utilized, through further changes, for the building of the tissues, and is distributed throughout all parts of the plant, even to the roots from whence part of it came. The process of changing the inorganic materials into organic materials, or assimilation, takes place only in daylight, but the transfer and subsequent use of the elaborated food may take place more freely in darkness. So it comes that most of the growth of the plant is made at night.



**BISEXUAL PISTILLATE PISTILLATE PISTILLATE BISEXUAL**  
We use this illustration to make clear our method of mating plants. You will note that the first blossom to the left is a bisexual; this is followed by three pistillates; then another bisexual. Imagine that each of these blossoms represents a row of plants, and you will see that the three rows of pistillates come between two rows of bisexuals. One of the bisexuals should be a trifle earlier and the other a trifle later than the pistillates. This mating is necessary only when you wish to use pistillate varieties. Should you set no pistillates the bisexuals may be set alone. In other words, the pistillate does not increase the yield or quality of the bisexual, but the bisexual is essential to the pistillate. The bisexual plant produces flowers having both male and female organs, while the pistillate flowers have only female organs

soluble plant food may be, the leaves must be in perfect, healthy condition to take care of the crude material as the roots send it up. Thus it will be seen that there must be perfect harmony between the soil and the roots and foliage of the plant so that the plant may use the elements of the atmosphere

fertility supplied by his fowls can in no other way be turned to so profitable account as when used to fertilize the strawberry field. It is a matter of statistical record that strawberries yield the largest revenue to a given area of any crop, and when the soil is prepared for the plants by the use of chicken droppings it is especially adapted to largest success in the way of quantity and quality of the strawberry yield.

Many of our most enthusiastic customers tell us of the excellent way in which these two related lines—strawberries and chickens—work together. The strawberry season comes just at the time when the poultryman is required to give the least care to his stock, and can, therefore, devote his best energies to taking care of the strawberry crop. When one individual combines these two occupations he has an all-year-round business which gives him a constant revenue. Many a comfortable fortune has

been made, and is being made, by those who employ this most effective combination, and we hope to see the number vastly increased.

**Bees**—The bee is a friend of the strawberry. She likes the white blossom and finds in its depths the nectar which she resolves into honey. In the securing of



#### THE HILL SYSTEM

This involves simply the setting of mother plants as close as you wish them. The runners are pinched or cut off before the nodes are formed. When grown in this manner and the work is to be done by hand, the rows may be placed as close as twenty-four inches apart and the plants set twelve to fifteen inches apart in the row.

With this little knowledge of how plants feed it would seem that much depended upon the leaves of a plant, which of course is true; but just allow something to go wrong in the soil and see how quickly the leaf will show it. Or let some tiny underground insect nibble upon the roots, or let some sucking insect, so small that it could scarcely be seen with the naked eye, stick its beak here and there into the rootlets and extract some of the juices and see how quickly the leaf will show that something has gone wrong. Neglect cultivation and allow the moisture to escape through the packed, crusted surface and the leaf will show the results more quickly than the roots. Or just allow fungous spores or insects to destroy the leaf tissues and the roots will immediately make inquiry as to what has gone wrong with the leaf department. Just as soon as something goes wrong with the leaf the distribution of elaborated food ceases to be normal. Then the root must starve, even though it collects food. It does not matter how abundant the

and soil to get just the right percentage of each at the proper time in order to build up a perfectly balanced plant, uniform in all its parts.

**Chickens**—The man who is making a specialty of poultry or egg production is in a particularly advantageous situation to engage in strawberry culture. The



#### LAYERING RUNNERS TO ENCOURAGE EARLY ROOTING

Just as soon as the young plants are formed we draw soil or lay a small stone on the runner cord just back of the node, or young plant. This holds it in place and encourages the roots to take immediate hold upon the soil, thus relieving the strain upon the mother plant, and at the same time it develops a stronger runner plant. It also fixes the plant just where you wish it to be in the row.

the sweet, her body is laden with the yellow pollen, and as she moves from bloom to bloom she scatters this pollen so that the pistils of the plant are fructified and made productive of more perfect fruit and of larger quantities of fruit.

**The Professional Man**—To the man of sedentary pursuits, remaining at his desk through many hours of the day, there is no other occupation that gives greater promise of health and pleasure, to say nothing of possible profits, than strawberry growing. And whether such a person is blessed with a generous area of fertile soil, or is limited to narrow confines at the rear end of a city lot, he may count with equal certainty upon the work to give him health and such delight as he will find in no other line of effort. It is the universal consensus that the strawberry patch is the most attractive spot on the home place. The flower garden is full of beauty and fragrance, and the vegetable garden has its elements of pleasure and promise, but the strawberry patch is not only a scene of beauty, but responds to man's natural demand in delicious edibles. In all the range of fruits nothing more amply fills one's ideal of gastronomic joy than do ripe, luscious, well-flavored strawberries. Out of our own experience, as well as from a countless number of enthusiastic letters that have come to us concerning this matter, we can confidently assure our friends of the professions that the keenest pleasure of life awaits him who engages in the growing of strawberries.

#### The Use of Commercial Fertilizer

The long and successful experience we have had in the growing of strawberries

has convinced us that no fertilizer is more valuable in the thorough preparation of the soil than barnyard manure. When this is properly applied and thoroughly worked into the soil it seems to furnish the necessary plant foods and humus to satisfy the strawberry plant and cause it to produce abundantly the very choicest berries. However, we realize that in some sections of the country the scarcity of manure makes it impossible for some growers to get sufficient quantities of stable manure properly to enrich their soil, and for the benefit of such growers we give below a formula for commercial fertilizer best adapted to the development of the strawberry—three per cent nitrogen, nine per cent potassium and seven per cent phos-

phorus—which seems to be about the right proportion to insure big crops of choice fruit. This proportion may be obtained by combining ingredients as follows:

For nitrogen use 100 pounds nitrate of soda, or 75 pounds sulphate of ammonia, or 250 pounds cottonseed meal per acre.

For potassium use 90 pounds sulphate of potash, or 95 pounds muriate of potash, or 400 pounds kainit per acre.

For phosphorus use 250 pounds acid phosphate, or 250 pounds dissolved bone per acre.

If the grower wishes to use more than this amount per acre he may increase all the different ingredients in the same proportion. This fertilizer should be applied in the spring, after the ground has been plowed, and thoroughly harrowed into the soil before plants are set. If a light dressing of manure could be applied to the ground in the winter or spring, and one of these combinations of commercial fertilizers worked into the soil before plants are set, you would certainly have the ground in splendid condition for best results.

#### How to Get Nitrogen at Low Cost

One of the essentials to strawberry success is the presence of an ample supply of nitrogen in the soil. The nitrates of soda are expensive, costing, according to quantity purchased, from four to five cents a pound—and it is heavy stuff, too. But nature has given us a method of getting nitrogen into the soil at very little cost indeed.

Our forefathers used to follow nature's plan in this matter, but didn't know they were doing it. They used to wonder what it was in the clovers and vetches and peas and beans that did the soil so much good. Modern science has told us why this is, and



#### INSURANCE AGAINST INSECTS AND PLANT DISEASES

The work of spraying our plants goes on continuously from setting time until mulching time, using arsenate of lead and bordeaux mixture. While the illustration shows but one sprayer, we have three large machines for this work. This year we sprayed our hundred acres of plants ten times, copper-plating every leaf as well as coating them with arsenate. Figure this up and you will see that it equals a thousand acres of spraying, and to do this required 450 barrels of spraying fluid. It is needless to say more than this about the health and cleanliness of Kellogg's Thoroughbreds. This is another reason why our plants are the least costly of all plants.



#### FOUR ACRES OF THOROUGHBREDS THAT YIELDED 53,000 QUARTS

The above scene is a view in the strawberry field of O. J. Wigen, of Creston, British Columbia, who, writing under date of July 28, 1908, to the R. M. Kellogg Company, says: "Having just finished the marketing of 2,206 24-quart cases of strawberries from a little over four acres of ground set with your Thoroughbred pedigree strawberry plants, I feel it my duty to let you know of the performance of your plants in this part of British Columbia; and I would add that under a more perfect system than I have been able to follow this yield can be greatly increased." Mr. Wigen employs fifty Indians as pickers, and his situation is one of romantic beauty, reminding us of the pioneer days of long ago. To have grown more than 13,000 quarts of strawberries to the acre is a feat worthy of special notice.



THE HOEING BRIGADE ON THE R. M. KELLOGG COMPANY'S FARMS

just how it is that these crops, which are called legumes or leguminous crops, renovate and strengthen the soil. These legumes have on their roots little tubercles or nodules, and in these tubercles are bacteria—more than a million in one tubercle no larger than a grain of wheat. These bacteria have the power to digest nitrogen and make it available as plant food, much as the bacteria in yeast transforms the bread dough into food for humans. Now there is an inexhaustible supply of free nitrogen in the atmosphere—twelve pounds to every square inch of earth—and through the legumes these bacteria have the power to draw in great draughts of this free nitrogen and transmute it into available plant food. So far as is known, there is no other family of plants save the legumes that encourages these bacteria.

Therefore, the way to get nitrogen into your soil at the lowest possible price—a free gift, as it were, from bountiful and generous nature—is to alternate your fields with legumes of some sort—cowpeas or field peas we recommend—and plow it all under in the fall after the whole mass of vines have become fibrous and the peas are ripe. This will fill your soil with two prime requisites, the element nitrogen and great quantities of vegetable matter; and decaying vegetable matter, as we have pointed out in the article on "Barnyard Manure for Strawberries," is one of the very first steps to success in crop production. Don't rush off and invest a lot of money in commercial fertilizers while results may be achieved by the employment of a little gumption and the resources right at one's own hand.

#### Reason and Common Sense

In order that a machine of any kind may do perfect work, every part of it must be in working order. A small defect in a machine will cause a defect in the article the

machine turns out. If a horse is to do his best, whether on the track or in the field, he must be in perfect condition; must be properly fed, groomed, harnessed, hitched and driven.

The same is true in the case of strawberry plants. They must be perfectly developed and strong in all their parts before they can produce big crops of big red berries, and it is because the Kellogg strain of Thoroughbreds are thus perfectly developed that they have beaten the world's fruiting records.

#### Barnyard Manure for Strawberries

Many strawberry growers fail to comprehend the value of barnyard manure to the strawberry, but if they will remember that barnyard manure has both a chemical and a physical effect upon the soil, while the best of commercial fertilizers produce only a chemical effect, they will begin to understand why it is

we so persistently advocate the use of barnyard manure in the strawberry field.

The first agricultural experimental farm ever created was that at Rothamstead, England, more than a half century ago, and there the most valuable experiments have been carried on since that time. On that farm it was found that the average yield of wheat for fifty years on land with no manure or plant food applied was 13.1 bushels; with heavy applications of farm manure each year, 35.7 bushels; with commercial fertilizer without manure, 37.1.

The effect of manure upon the physical condition of the soil is more apparent in the United States than in England, on account of our drier seasons, which require that the soil be put in such condition that it has greater capacity to hold moisture

than is necessary where the rainfall is more evenly distributed. Occasionally they have a dry season in England, as for example in 1893, when the wheat plots of Rothamstead that were treated with commercial fertilizers produced only 21.7, while those where farm manure was applied yielded 34.2 bushels.

From this experiment it may be concluded that in humid districts, where there is ample rainfall to insure good crops, the greatest value of the barnyard manure is in the plant food it contains, although even here we must not fail to recognize its great physical value. But in the more or less arid regions, or where there are periods of drought at critical times for the crops, the physical conditions created by the decaying vegetable matter contained in barnyard manure are of the utmost importance.

Organic matter in the soil does another thing of prime importance—it sets free



THOROUGHBREDS TOP THE MARKET AT PORTLAND, OREGON

The above illustration is a view in the beautiful field of strawberries grown at Oregon City, Oregon, by Mr. A. H. Finnigan. Not only is it a marvel of cultural excellence, but the fruit Mr. Finnigan sends from it to the Portland market is the top-notch as to price. Writing under date of July 20, 1908, Mr. Finnigan says: "I enclose you a clipping from a local paper showing that I'm on top at last! My berries sold in Portland all the season for 15 cents, when one could buy all he wanted of other kinds at three or four boxes for 25 cents. Kellogg's plants, high cultivation, good packing and a label that said something, put me in a class by myself. And better still, my berries are all engaged for next year!"

some of the locked-up plant food that resides in the soils. All our soils contain vast quantities of fertility, but these rich stores are mostly in forms which are useless to plants. To make them available as plant food is one of the

making food elements available. And the family of plants which includes the clovers, beans, peas and alfalfa actually add fertility to the soil. So we say, use barnyard manure; use it intelligently. It will bring large returns and render

ground, leaving the crown and part of the roots exposed.

Strawberry plants should be set in the spring, as early as soil and weather conditions permit. Never in the fall in northern latitudes.



MODEL ORCHARD OF E. N. BENSON, HOOD RIVER, OREGON

Note clean cultivation, berries between trees, grading and irrigation on side hill curving to contour of the hill

most important functions of the decaying vegetable matter found in barnyard manure.

And to these advantages are to be added the fact that the decay of vegetable matter generates materials which decompose the soil particles and also promotes various soil activities. All these working together are continually

successful many an enterprise that without its use might prove a failure.

#### Axioms

Don't let a bed of strawberry plants run wild after you have fruited it for several years. Burn it off clean, which will destroy insects.

Don't stick the tips of the roots in the

Be sure and mulch your plants. Just after the first hard freeze is the time. Oat straw, wheat straw, sowed corn, sorghum pomace, marsh hay, or any similar material will serve the purpose.

Don't work a minute in your patch when the ground is wet.

Never set a plant that comes from a bed that has fruited. Such a plant will not give you desired results. Its fruiting powers already have been discounted.

Don't take your plants from an old fruiting bed, as insects and fungous spores are bound to go with the plants.

Don't go deep or close enough to the plants to cut the roots when you are cultivating.

Keep the surface of the soil constantly stirred. Cultivation conserves moisture, keeps down the weeds and brings new supplies of plant food to the plant, and makes big crops of strawberries certain.

Don't set plants in furrows; for then the dirt will wash down and smother the heart leaves.

Don't allow plants in your fruiting beds to mat thickly.

Don't set out your plants until your soil is made perfectly fine, and, if manured, see to it that the manure is thoroughly incorporated with the soil.



HEELING IN PLANTS—SHOWING PLANTS IN TRENCH

Should plants arrive before you are ready to set them in their permanent place, dig a V-shaped trench in a shady place, open the bunches—one variety at a time—and place the plants closely together against one side of the trench, as shown in cut. You will note that the crowns of the plants come even with the surface of the soil and the roots hang straight down in the trench. When plants are placed in this manner, draw the soil from the opposite side of the trench up against the roots and press it firmly.

# STRAWBERRY GROWING IN HOOD RIVER VALLEY

BY E. N. BENSON, PRESIDENT HOOD RIVER FRUIT GROWERS' UNION, HOOD RIVER, OREGON

IT is sometimes a difficult matter for a new beginner at least, to grade a piece of ground as perfectly as it should be. I would consider a piece of ground perfectly graded when you can

almost any crop will serve as a green manure, yet certain crops possess a greater value than others for this purpose, because they are able to obtain certain of their constituents from sources

crops do; but there is this difference, clover is a deep feeder; it sends its roots far down, and gathers up and brings to the surface that which naturally exists in the subsoil, and it also lays



MODEL ORCHARD OF E. N. BENSON, HOOD RIVER, OREGON  
Showing strawberries between rows of trees. Sale of strawberries from five acres grossed \$1,628.90

make rills the length of your field, and be able to turn the necessary amount of water in at the end of the irrigating flume without flooding any part of the field between the flume and the end of the row. It is necessary in some instances to do a great deal of grading, especially on a new piece of ground, but by all means get it in perfect condition before you start setting your plants, because it is much cheaper to you and a great deal more satisfactory as well, to have your field irrigate without any trouble. You must bear in mind that you leave your plants in for three or four years, and the extra expense of spending an extra day or two grading is nothing compared with the expense of trying to irrigate a field set to berries that is not properly graded.

## Clover as a Green Manure

A great deal of misconception is prevalent concerning the value of green manures. These do possess a great deal of value, and a proper understanding of their use in fruit growing will undoubtedly result in a great deal of benefit to the fruitgrower. By green manures is meant any crop that is grown for the purpose of improving the soil and not for the crop it yields if harvested. In this sense,

not accessible to all crops. In other words, the clover is a nitrogen gatherer and can obtain the nitrogen necessary for its growth from the air as well as from the soil.

At market rates for nitrogen there is in the air resting on a square rod of your farm more than \$90,000 worth. So you see we need not worry about the supply giving out. Of course, clover can get no mineral matter from the air; it must get that from the soil, as other

hold of what is constantly leaking down with the water when you irrigate and by heavy rains, and what has got below the reach of surface-feeding plants like the strawberry. It gathers up escaping nitrates, as well as mineral matter, and practically all comes to the surface again when you plough the clover under.

If the field that you are intending to plant to strawberries is naturally rich, it probably would not be necessary for you to prepare your ground by first growing



## PLANTS PROPERLY HEELED-IN TO HOLD TILL GROUND IS READY

When the trench is filled in with soil the plants will resemble those shown in this cut. Please note that the soil is pressed firmly all around the crowns of the plants, which prevents air from drying out the roots. A label showing name of each variety should be placed at the end of the row as it is heeled-in. We often have kept plants in this manner for several weeks with entire success. In fact, it is better to have plants shipped while they are yet dormant and heel them in than it is to have them held at the nursery until the ground is ready. Plants should be pruned before they are heeled-in.

a crop of clover, but in most cases it would pay you well to do so, as the year you lose in growing the clover you would more than gain back in extra yields during the three or four fruiting seasons of your strawberry field. And a field of strawberries when torn out should never be planted to berries again without first growing clover for one or two years to add humus as well as nitrogen to the soil.

In ploughing a piece of clover sod, where your ground has been graded and is in good condition, it is sometimes an advantage, especially where you have a small field, to plough only one way and carry your plough back empty. You may think this is a waste of time, as it will take you twice as long to plough your field, but you must consider that when you get through ploughing your field is already graded, without any dead furrows, and it is a very difficult matter to grade a piece of clover ground on account of the clover roots.

#### Distance for Planting

The distance universally used is thirty inches between the rows, and from twelve to fifteen inches between the plants in the row. This, however, should be regulated somewhat according to strength of soil. On poor soil the plants should be set closer, while on heavy soil they should be planted further apart, for the reason that the light soil makes a smaller plant and consequently less berries. For this reason it is necessary to plant close to get a good yield, while on heavy soil, or some rich bottom land, where the plants grow to a large size, it would be necessary to plant them farther apart in order to give the plants room to develop and plenty of air and light to ripen the fruit.

#### Setting the Plants

There are two different ways of setting the plants. One is to set the roots of the plant straight down; this the writer considers the best way. In order to set the plants with the roots straight down, the writer uses a trowel made for that special purpose, three inches wide at the bottom, four inches at the top, and six inches long. If the roots of the plants should be any longer than that the ends of the roots should be trimmed off suffi-

ciently to spread out straight in the hole when planting; then the dirt should be firmed around the plants with the palms and fingers of the hands, without laying the trowel down. One man, in this way, with a boy to drop the plants, can set from six to eight thousand plants per day, or about half an acre per day.

The other way to set plants is with a hoe with the handle sawed off to suit

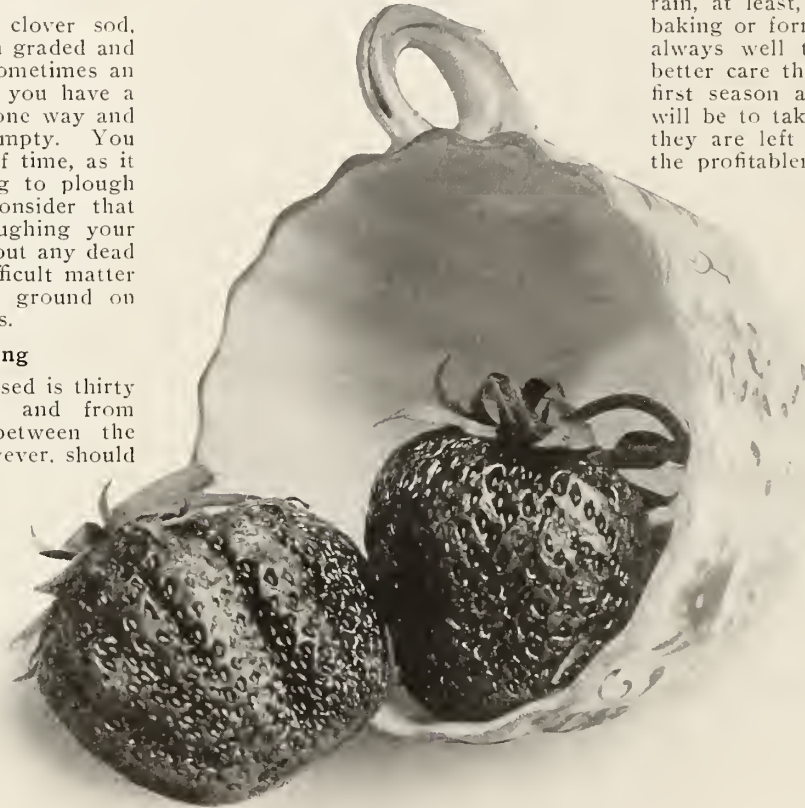
followed with a hand hoe. Hand hoeing should simply be done to cultivate the soil between and around the plants, and it should be done in such a manner that it will leave a loose mulch from one-half to one inch all around the plants, to keep the soil underneath moist, so it will not bake and get hard.

The wheel hoeing should be done every two weeks, or after every hard rain, at least, to keep the ground from baking or forming a crust on top. It is always well to bear in mind that the better care the young plants receive the first season after planted, the easier it will be to take care of them as long as they are left in, and further than that, the profitableness of the field will, to a great extent, depend upon the care they receive the first summer after they are set out. If you make strong healthy plants of them the first year, and give them reasonably good care thereafter, you will always have a good field, and on the other hand, if they are neglected the first season and the weeds get the start of you, your plants will never amount to very much, as the weeds will rob your soil of the nourishment that the plant should receive, and will cause you a great deal of backache and hard work for the amount of berries you will receive in return.

#### Irrigation

Most parties in irrigating, irrigate too much, and the vicious practice of running the water on the fields night and day, whether

the plants need it or not, is simply one way of washing the fertility out of the soil, and this is a point which should be avoided especially on a sandy or gravelly soil with poorer subsoil. It should always be borne in mind that in order to make the plants do their best they should simply be kept nice and moist, but not water-logged. Each irrigation during the summer should be followed with a cultivation as soon as the ground is sufficiently dry to cultivate nicely. This has reference to the first summer after the plants are set. After that, no cultivation is given during the blooming and fruiting season, and they should be given continued irrigation during the fruiting season, especially if the weather is hot and the soil is sandy, as running the water through the rills will have a cooling effect upon the soil. However, it is always advisable to manage irrigating so that you do not irrigate just ahead of the pickers.



GLEN MARY AND WARFIELD

the convenience of the one that is doing the planting. Then he strikes the corner of the hoe in slanting under the top of the dirt and lets the probably dry and loose dirt fall down on top of the roots, crawls along, placing one knee on top of the plants and considers that he has done a good job of planting.

#### Cultivation

As soon as you get your plants set, cultivation should begin immediately, if in the spring and the weather is dry. This can best be done with a wheel hoe,



THE MAMMOTH BLACKBERRY

The Fancher Creek Nursery, Fresno, California, comments on the Mammoth Blackberry as follows: Supposed to be a cross between the wild blackberry of California and the Crandall's Early. Grows entirely unlike any other blackberry plant known. It is a rampant grower, trailing on the ground, and under favorable conditions will grow twenty feet in a season. The canes are large, of a deep red color when exposed to the sun; the foliage is large, thick, of a deep green color. Enormously productive and exceedingly early, ripening three weeks before other cultivated kinds. Fruit enormous, specimens measuring two and one-half inches long; seeds small, soft and abundant; core small, soft; in size and flavor said to surpass all other varieties of blackberry. Ripens in June.

### Picking the Berries

One should, if possible, have at least part of the pickers engaged before the picking season commences, and be well supplied with hand carriers. It is always well to have at least four times as many hand carriers as you think you will need pickers, as time is very precious during a rush, and you want the pickers to pick all they can, and when you have a crowd of pickers, say about twenty-five, all starting out in the field in the morning at the same time, there will always be a number of them coming in at the same time with a carrier full. Then one should be well supplied with carriers filled with empty boxes, so the pickers will not have to wait while you empty their carriers.

Another reason why you should be well supplied with carriers is that you should have enough carriers so that you can place the full carrier on the packing tables for your packers without taking the boxes out. In this way one can mark a carrier simply by placing a card with the number or name of the picker who picked that carrier full of berries in the carrier when it is brought in, and when the packer packs the berries one can then find out whether the picker picks according to instructions.

Berries, to be just right for picking, should be red on the upper side, shaded down to very light pink on the under side. Then the berries are in the right condition for picking, and, if properly packed, will carry to the market in number one condition. All berries should be picked with a stem one-fourth of an inch long. This is done by placing the thumb and forefinger under the berry, and a slight pressure of the thumb nail against the forefinger will accomplish this a great deal quicker than I can tell it. No picker should be allowed to pull or snap the berries off without a stem, as all such berries will not keep and should be discarded as culls. It is also necessary to see that the pickers pick all the berries that are ripe enough to be picked, as the next day, if the weather should be hot, they would be over-ripe and would have to be sorted out as such.

It is also necessary to be careful not to let the pickers set the small boxes down on the loose dirt in the field, so as to get them dirty and soiled. It is also necessary to watch the pickers to see that they do not carry the berries around in their hands or in their aprons to fill out the top of their carriers, as this will take the gloss and shine off the berries and render them unfit for the market.

### Packing the Berries

No berries should be packed unless they are perfect in shape and firm. All

long-necked and over-ripe and those that are too small should be sorted out, and it is always necessary to watch the packers, especially new beginners, to see that they make a solid pack and still not squeeze the berries in placing the top rows. The berries in the under tier of boxes should be kept from projecting over the edge of the boxes, for if they do, when the top tier of boxes are placed in the crate they would cut the berries

hallock or box, berries of uniform size should be selected and packed four by four, four by five, or five by five. A five by five is as small a berry as should be packed.

### Growing Young Plants

The best plants are grown from young plants, that is, fields of plants planted the previous fall or spring. The best part of the field should be selected for plant growing, and the first and second set of runners should be trimmed off to make the plant strong and vigorous before the runners are allowed to take hold and set for young plants.

If it is desired to have the young plants ready for transplanting during the summer, say during the last of July or first of August, it is sometimes necessary to press the young sets into moist ground sufficiently so they will stay there. In this way the plants would be ready for transplanting in from ten days to two weeks. And plants transplanted this time of the year, if the ground is in good condition, will make a good growth during the fall months and the following spring could be expected to turn off a very nice yield, from seventy-five to a hundred crates an acre.

The strawberry is often called the poor man's berry, and justly so, as a person with limited means who invests all his capital in a piece of land can plant it to orchard and then can plant strawberries between the tree rows, and in this way get a nice revenue from his land. In this way the growing of the orchard is clear gain, as it increases the value of the land at the rate of a dollar per tree, or from sixty-five to a hundred dollars per acre a year, and the cultivating of the strawberries will take care of the young trees without any extra expense for cultivation.

### Profit in Berry Growing

The soil of Hood River Valley is peculiarly adapted to the suc-

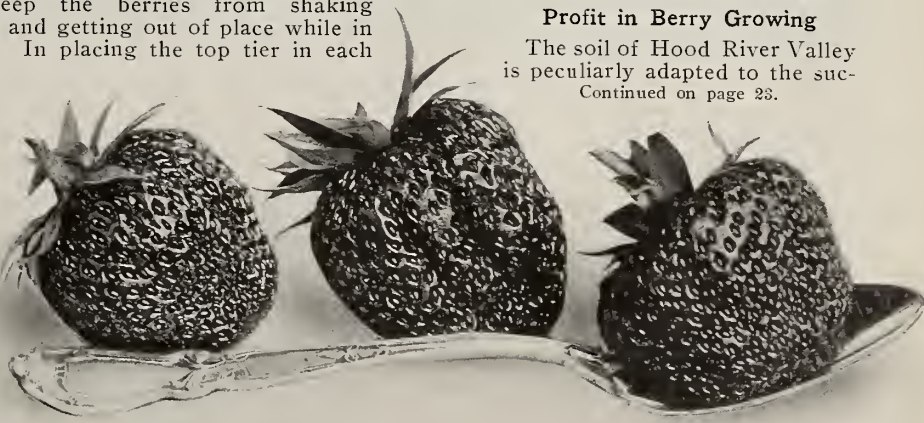
Continued on page 23.



GLEN MARY AND WARFIELD

projecting over the edges of the lower boxes, and make a soiled and stained-looking package. The top boxes should always be filled full enough so that the berries in the boxes will just about touch the cover when it is nailed on. This will keep the berries from shaking around and getting out of place while in transit. In placing the top tier in each

it increases the value of the land at the rate of a dollar per tree, or from sixty-five to a hundred dollars per acre a year, and the cultivating of the strawberries will take care of the young trees without any extra expense for cultivation.



NICK OHMER AND WILLIAM BELT

It is unnecessary for us to say anything about the size of the berries produced by the Nick Ohmer and William Belt. The picture tells the story more eloquently than we could do it in words.

## THE PROPER FERTILIZATION OF THE STRAWBERRY

**O**WING first to the nature of the methods practiced in the growing of strawberries, and second to the character of the strawberry plant itself, heavy fertilization is always necessary with this crop. Indeed, one of the great and common faults in the management of strawberry fields lies in niggardly feeding. The editors of the *Country Gentleman* have recently asked Professor William P. Brooks, fertilizer expert of the Massachusetts Agricultural College, for his views on this subject, and they have been given substantially as quoted below.

source of organic matter is in this particular direction an advantage.

Notwithstanding this fact, the use of manure is ordinarily advisable, if it can be produced at a reasonable price, in good mechanical condition and not especially stocked with weed seeds. From twelve to fifteen cords spread in the fall and plowed under, gives a good foundation for a productive strawberry bed. If the manure turned under in the fall is in fine mechanical condition, it would seem best to replot in the spring, but if the manure applied is coarse it will be preferable to disk harrow in the

slag and potash suggested should be spread after plowing and deeply worked into the soil with the disk harrow.

In case the soil on which the strawberry bed is to be set is comparatively raw and unfertile at the start, it will pay to use, in addition to either the ashes or slag meal, about one hundred pounds of nitrate of soda mixed with two hundred pounds of basic slag meal. This mixture should be applied as soon as the plants are rooted and should be cultivated in.

In case no manure is available, or where it can be obtained only with dif-



DISPLAY OF OTIS ORCHARDS, OF SPOKANE VALLEY, AT NATIONAL APPLE SHOW, SPOKANE, WASHINGTON, DECEMBER, 1908

The strawberry is native to soils rich in humus, and a relatively high proportion of this element in the soils on which it is cultivated is a necessity for the best success. The use of manure is, therefore, important in all soils in which the percentage of organic matter is small, if immediate results are looked for. If time for preparation can be taken, similar and, at least in one direction, superior results can be obtained with fertilizers, but the turning under either of a green manure or a rich clover sod will be an essential preliminary. Manure, whether from the stable or barnyard, frequently carries weed seeds, and since the removal of weeds from the strawberry bed after the vines begin to run is somewhat difficult, dependence on green manuring or a freshly-turned clover sod as a

spring rather than to plow. In cases where manure is used, it seems best to supplement it with fertilizers. Wood ashes are well suited to the crop. The amount which it will be advisable to apply will vary with the condition of the soil at the outset and the amount of manure used, but in most cases from one thousand to fifteen hundred pounds will not be too large a quantity. In place of wood ashes, in localities where these are difficult to obtain or high in price, somewhat similar results may be obtained by using a combination of basic slag meal and low grade sulphate of potash. From eight hundred to twelve hundred pounds of the former and three hundred to four hundred pounds of the latter will be suitable quantities. Either the wood ashes or the combination of

difficulty, the soil may be brought into suitable condition for strawberries by turning under a green manuring crop, or if a strong clover sod is available, this, when turned under, is likely to afford a suitable foundation for a successful strawberry bed. Among the green manuring crops likely to prove most useful are winter rye, buckwheat, crimson clover, the soy bean or cow pea. Any one of the legumes named will be superior to the rye or buckwheat, as they will enrich the soil in nitrogen.

In order to secure a vigorous growth of the green-manuring crop, it is advisable to fertilize it, and an application of wood ashes at the rate of twelve hundred to fifteen hundred pounds to the acre, or a mixture of basic slag meal, one thousand to fifteen hundred pounds,

and low grade sulphate of potash, three hundred to four hundred pounds, will prove useful. Such application will be sufficient in most soils to produce a strong growth of either of the legumes above named, but if for any reason either buckwheat or winter rye is selected as the green-manuring crop, it will be advisable to use nitrate of soda at the rate of about one hundred and twenty-five pounds to the acre, in addition to the other materials. In case the nitrate of soda is to be used, it is advisable to mix it with two or three times its own weight of basic slag meal, in order that it may be more evenly distributed. If the nitrate is to be used for winter rye it should be applied in

acre: (1) Tankage or Peruvian guano, 600 pounds; the fine-ground bone, 1000 pounds; low grade sulphate of potash, 600 pounds; nitrate of soda, 100 pounds. All these materials may be mixed, applied after plowing, and thoroughly incorporated into the soil by harrowing. (2) Dried blood, 200 pounds; tankage or Peruvian guano, 800 pounds; low grade sulphate of potash, 600 pounds; basic slag meal, 1000 pounds; nitrate of soda, 100 pounds. The slag in this selection of materials must not be mixed with the blood, tankage or guano, as it will cause a loss of ammonia. It will be better, therefore, to apply the slag by itself.

The purchase and mixture of materials in accordance with the suggestions

and the saving in the cost will much more than cover the expense of putting the materials together. Somewhat similar results, however, may be obtained by using from two thousand to twenty-five hundred pounds of high grade mixed fertilizers, containing from three and a half to four per cent of nitrogen, seven to ten per cent of phosphoric acid, and six to eight per cent of potash.

If the soil is prepared in accordance with the suggestions made, the use of fertilizers in the bearing year will not ordinarily be required. Some injury to the vines is likely to follow the application of fertilizers in bearing years, unless great care is taken to make the application when the foliage is dry, and



EXHIBIT (COMMERCIAL PACK) WENATCHEE VALLEY, WASHINGTON, AT NATIONAL APPLE SHOW, SPOKANE, DECEMBER, 1908

the spring. If for buckwheat, it should be harrowed in at the time of sowing.

If a clover sod is to be turned under for strawberries, it will be advisable to make the application of wood ashes or of the slag and potash for the clover a year previous to breaking it up. Although practically all the plant food applied the previous year in the green-manuring crop will remain to benefit the strawberries which follow, it is advisable to make a further application of fertilizers in preparing the land for setting the vines. The strawberry is a plant which it pays to treat liberally, for it has extraordinary capacity for productiveness under the best conditions.

Either of the following mixtures of materials should give good results, the quantities being those recommended per

which have been made, will enable the buyer to obtain more plant food for a given expenditure than can be obtained in the special fertilizers on the market,

even then so much of the fertilizer sometimes remains on the foliage that it burns the leaves when dissolved by dews or light rains.—Country Gentleman.

## STRAWBERRY GROWING IN HOOD RIVER VALLEY

Continued from page 21

cessful growing of strawberries, and one variety, the Clark Seedling, has been grown here continuously for the last thirty-five years, and the writer has shipped berries clear to New York City by open express, which arrived in number one condition. The profit of an acre of berries depends upon the yield and also, to some extent, on the location, as the early berries always bring the best price. The first Hood River berries in the market usually sell at fifty cents per box or twelve dollars per crate, while

the later berries may bring in the neighborhood of two dollars per crate. The yield runs from one hundred to as high as three hundred crates per acre, and depends to a large extent upon the condition the soil was in when it was set to plants, and also the care they received after planting. Probably a very fair average yield would be one hundred and fifty crates per acre, and the average price per crate during the last three years has been about \$2.25 per crate.

# METHODS FOR CULTIVATION OF SMALL FRUITS

BY W. S. THORNBUR, PROFESSOR OF HORTICULTURE AT PULLMAN, WASHINGTON

AT THE last meeting of the State Horticultural Association the following address was delivered by Professor Thornber, and will be found of great value to growers of small fruits:

The person who visits Western Washington for the first time during the harvesting of the crops of small fruit, feels that previous to that time he has never known the real meaning of berry culture. It is a sight worth traveling miles to see, and when once seen is sure never to be forgotten. When this industry was in its infancy (and it is still in its infancy as compared to what it will be in years to come) it presented comparatively few problems to what it does now or may in the future, but yet there were real trials that had to be met by clear thinking, willing, as well as adventure-some men. And now, while these problems have not been entirely solved, yet they no longer appear as unsurmountable obstacles.

It is practically impossible to give intensive culture to the same kind of fruit on such a large scale as we are now doing, without frequent and constant outbreaks of insect pests and plant disease. This is the history of fruit growing everywhere, and we must expect it here in Washington.

## As to Soils

The soil is one of the first things to consider in the culture of any crop, and this is even of more importance for small fruit than most crops. Berries desire a moist, rich, porous and early tillable soil. It must naturally or artificially contain a large amount of humus. Practically all of our Western soils contain abundance of available plant food when in proper physical condition, and few of them respond when through a mistake in cultivation or irrigation this good physical condition is lost. If the soil lacks humus before the field is planted, this evil should in part be remedied by growing a crop of some plant that can be turned under as green manure, or by hauling on barnyard manure. If this deficiency is not noted until the plants are set, or is even noticed in an old bearing plantation, humus may be added by mulching with rotted manure. This is usually a slow and expensive piece of work, since it is practically

impossible to secure manure in sufficient quantity to cover a very large field. Many of the growers around Puyallup are meeting this difficulty very successfully by combining dairy and fruit growing interests, and it is surely a rich combination.

A few growers are making use of small quantities of lime as fertilizers to their fruit lands, and while this is not essential it may serve the purpose of making the plant food more available, but in itself it contains very little plant food that is not already available in the soil.

The manner of cultivating these patches is very variable, some giving first class culture throughout the season and receiving in return generous rewards, while others give good culture until fruiting season begins, and then neglect it at the time the plants most of all the season need the best of care and abundance of plant food and moisture. Of course, there is the third class of men who give third class culture and receive third class yields. Good constant culture is rewarding its advocates not only in fruit culture, but also in other lines of work. The nature of your soil will govern the kind of tool you are to use, but in general use a tool that

labor expended, were almost complete failures. Above all things, if the land is not naturally well drained it should be



PRIDE OF MICHIGAN, B. (MALE)

tiled before attempting to plant any kind of berries. Land that appears to be dry enough in summer, but is water-soaked all winter long gave very poor results last year.

## Methods of Planting

The planting plan used for berries is of far more importance than the average grower considers it. Too many of the fields are either planted so that it is impossible to give proper cultivation, or so close together as to hinder full development of the plants. Like all industries of its kind, there is a tendency of too close rather than too far apart. This close planting is not only responsible for poorly developed plants, small unsatisfactory fruit, hence light yields, but also for the encouraging of various insects and plant diseases that are sure to attack weak, poorly-grown plants.

There is no one condition more favorable to plant disease than closely planted fields, where the drainage is checked or entirely shut off and the sun cannot shine on all parts of the row.

While it is possible for one man to plant closely and keep his plants healthy and free from troubles by diligent work, yet a dozen good men may fail attempting to do the same thing.

The two general systems of planting that prevail or are the most common, are the hill method and the solid row method. Each has its advantages as well as its disadvantages, but the hill system is less liable to abuse by overplanting than the solid row system, hence we favor it for most cases.

The variety and kind of fruit grown has much to do with the method used and distance given to each plant.

## The Hill System

From personal observation of a large number of plantations visited last July, I found the hill system of planting carried out in all places. The distances used varied from five and a half feet each way in Mr. Stuart's fields at Mon-



BUBACH, P. (FEMALE)

goes deep in spring, to break up the soil particles, and a shallow working tool for later work during the summer, to keep weeds out and retain moisture. Nothing can excel the dust mulch for your plants if last summer was a fair sample of your weather.

## As to Drainage

It seems to matter little what your soil and culture is like; if your land is not properly and thoroughly drained you can't grow small fruit. Land that becomes thoroughly soaked during the winter and does not drain out well in early spring cannot be expected to produce fruit in this condition; it must be tile drained.

Last July, while visiting many fruit farms, we found a few that were poorly drained, and it was possible to trace the lines of drainage, whether it be tile or blind ditches, by the growth of the canes above them. Patches that might and should have produced liberally for



CLARK'S SEEDLING, B. (MALE)  
HOOD RIVER, OREGON

roe, for raspberries, to six and a half feet each way in Mr. Young's plantations at Sumner. Either one or both of the fields are examples of what can be done with raspberries. While five and



LOVETT, B. (MALE)

a half feet each way may seem rather close, and six and a half feet each way rather far, yet it is our opinion that these distances are very close to what is the best and most economical plan to follow.

Some of the advantages of this method are as follows:

1. Room for thorough cultivation each way.
2. Room for pickers to see and secure all of the ripe fruit at each picking, hence an improvement of the grade of fruit.
3. Room for proper pruning.
4. A means of training.
5. Good air drainage.
6. Sunlight, which is essential to the highest quality of fruit and the perfect development of the cane.

#### The Continuous Row System

The continuous row system is a very popular plan to follow in setting berries, and while it has many ardent admirers and not a few advantages, yet I feel that it has many disadvantages. This system of growing raspberries is nicely as well as successfully illustrated in the plantations of Mr. Paulhamus of Sumner, where the rows are eight feet apart and the individual plants average from two to three feet apart in the row. This gives plenty of room for culture, but only in one way.

Other plantations visited illustrating this same method of planting, showed some of the evil effects of the plan. The rows were from four and a half to seven feet apart, and the plants varied from eighteen inches to two feet apart in the row. In very few cases were these closely-planted fields as productive or healthy as the hill system. A few of the most apparent disadvantages of this method are as follows:

1. Cultivation is possible in but one way.
2. In dense rows it is impossible for the pickers to secure all of the fruit at each picking, hence grade is poor.
3. The circulation of the air is very poor.
4. Diseases affecting the roots of the plants find it easier to spread from plant to plant along the rows where the soil

is not disturbed, than where it is disturbed frequently and more or less exposed to the sun's action.

5. Disadvantages of poor sunlight.
6. Ease of training to single posts.

#### As an Orchard By-Product

The using of berries as fillers in the orchard is a practice that is more or less employed. In fact, I feel that it is used more extensively than it should be for the good of both the orchard and the berries.

Fillers are a good thing in an orchard so long as they stimulate better tillage and do not work an injustice to the trees, but the man is yet to be found who will remove the berries as rapidly as the tree needs the space. Since our trees require more or less spraying now every year, we frequently find that small fruit in an orchard hinders to a greater or less degree the thoroughness of this work.

Mr. Potter, of Puyallup, is demonstrating very effectively that berries may be used as fillers in his apple orchard. He has his trees set twenty feet apart each way, using the alternate plan. Between the trees in each row he has berries planted, and between each two rows of apples he has two continuous



BEDERWOOD, B. (MALE)

rows of berries, thus making his small fruit rows six and two-third feet apart. Last summer, when his plantation was visited, it presented every evidence of success, and I believe that as long as his trees remain small and need little or no spraying, that he will succeed, but there is too much risk for the average planter to risk this method.

Mr. Bacon's patch, at Sumner, presents, according to my notions, a much more feasible plan for the use of berries as fillers in the orchard. His trees are set thirty feet apart each way, while his bushes are set six feet apart each way, thus allowing plenty of room for cultivation in both directions. As the trees increase in size, the plants close to them will be removed, and if carried out as planned the evils of fillers will at least be minimized by this plan of work. If one has the proper conditions to grow English walnuts, this appeals to me as a very feasible plan to adopt, since we can make use of a longer stemmed tree than in the case of orchard fruits, and it will require less spraying during its early life.

#### Planting Plans

The Evergreen blackberry, Phenomenal berry and Mammoth blackberry

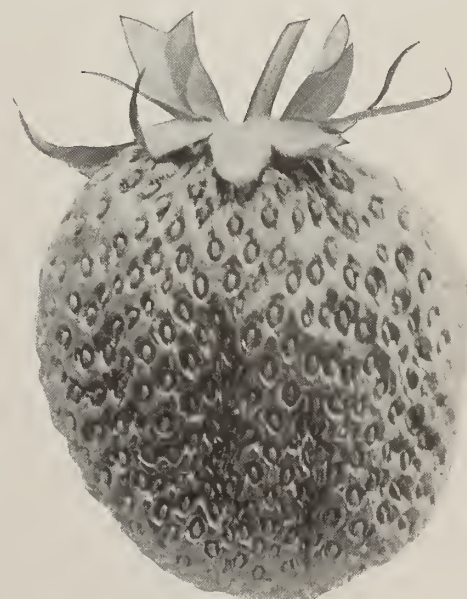
require an entirely different plan to make picking, cultivating and training possible. A majority of the growers agree that the rows should be from seven to eight feet apart, but they vary somewhat as to the distance between the plants of the row. However, the majority plant in alternating rows eighteen to twenty-four feet apart. Where the soil is poor or dry and the vines do not grow long canes, eighteen feet is enough, but where the soil is rich and moist, twenty-four feet or even more is none too much. Occasionally I found a grower who had planted in rectangles seven by twenty-four feet, but in all cases each pronounced it a mistake and advised planting on the alternate plan.

#### Training and Staking

The training and staking of berries is governed more or less by the plan of planting used and the method of tillage to follow.

Where the continuous row plan of planting is followed for raspberries and Snyder blackberries, some form of lateral support is necessary to keep the canes from leaning over into the spaces between the rows so as to interfere with cultivation, picking, etc. These supports may be made from various materials, for example, a heavy wire supported on each side of the row on cross-arms attached to posts set in the row is probably the most common means of support. Another method similar to the above is made use of by a few growers. It consists of setting posts sixteen by eighteen feet apart, opposite each other, on each side of the row; fasten these together with crossbars; on these crossbars light rails are laid on each side of the row. These act as a support to the canes and are less liable to injure them than a single wire.

The hill system of planting requires an entirely different method of staking. The more common way is to set a post at every hill and tie the canes to it with a strong cord. Mr. Young, of Sumner, employs a rather unique method, especially for Snyder blackberries, which consists in setting two posts eighteen inches apart at each hill. While one post holds the fruiting canes, the growing canes are being attached to and trained upon the other. This simplifies picking materi-



OREGON IRON CLAD, B. (MALE)

ally, and from the way his field looked it certainly is all right.

The Evergreen blackberry. Phenomenal berry and the Mammoth blackberry usually require a little different treatment. Each of these produce long, viny fruiting canes, and need some sort of lateral or horizontal support to keep them in shape so that the fruit may be picked, as well as the fields tilled.

Probably the most satisfactory method employed is the one suggested by Mr. Littooy in our meeting last year, or at least a modification of the same, which consists in setting a single line of posts in the rows, from eighteen to twenty-four feet apart, according to the distances used for setting the plants. To each post is attached two eighteen to twenty-four inch cross-arms, one at the top and the other eighteen inches below the top. To the outer edges of these cross-arms are attached heavy wires upon which the long canes may be attached.

Some prefer to keep the fruiting canes on the upper wires, while others contend that they should be on the lower wires. From the nature of the work it would be far easier to grow the new canes along the upper wires, and at pruning time drop them to the lower wires for fruiting. However, this method has the disadvantage of compelling the fruit to develop in the shade, which may not be entirely advisable.

#### Berry Enemies

During our trip through the berry fields last summer we found a few enemies to berry culture that were inflicting greater or lesser losses upon the grower.

Much damage was done last year and will be done in future unless destructive or preventive measures be taken to free the fields from meadow mice. Practically all the damage that we found was done in plantations that were in low lands or were bordered by meadows or native forest. These places are favorite haunts of the meadow mice, and while they do occasionally live on dry land they usually prefer moist or even semi-aquatic conditions.

They do their damage principally during the fall and early spring, by burrowing along under the surface and chewing the bark off of the roots, or even sever-

ing the laterals from the plant. It is almost impossible to detect the injury until long after it is done, hence it is hard to treat these fellows.

While they have lots of natural enemies in owls, hawks, crows, badgers, etc., yet there are not enough to keep them in check, and so rigid measures must be taken to keep them from doing even more damage than they have in the past.

Probably the simplest means of destroying them will be poisoning. It can readily be accomplished by treating six or eight quarts of wheat with a pint of hot water in which an ounce of sulphate of strychnine has been dissolved and a pint of heavy sugar added. The wheat thus treated seems to strike their appetite exactly, and if scattered along the rows or placed in small piles scattered through the field, one can soon rid a field of them.

#### Antwerp Root Disease

The Antwerp raspberry, which is the native red raspberry of Europe, is not proving itself entirely adapted to this climate. It is subject to various diseases to which the native Americans are not. This is not strange, however, since we frequently find that upon securing plants from other countries that they have new

A moist, cool season is one of the worst natural enemies that the red spider has to contend with, since he cannot thrive and multiply in a moist atmosphere. Anything then, that will tend



CLIMAX, B. (MALE)

to bring about this condition will be beneficial as far as he is concerned.

Cultivation that tends to keep the plants in an active growing condition and the moisture near the surface was a check to their injuries in many patches last year.

Since the life history of this particular species of red spider that is troubling the berries has not been worked out definitely, and we do not know whether he passes the winter in the egg stage on the canes and the foliage that may be on the ground, or in the soil as a partially grown insect, it is almost impossible to fight him during the winter or early spring intelligently.

Professor A. L. Melander is of the opinion that the winter is passed in the ground in a half-grown condition, and that spraying with sulphur lime wash in early spring would be of no value. But if the winter months are passed in the egg stage on the canes or dead leaves, it would be possible to destroy many, if not all of them, by clearing the patches of dead leaves and rubbish and then thoroughly spraying with lime-sulphur spray.

If we cannot reach them with the lime-sulphur spray early in the spring, we must be ready to spray with kerosene emulsion, to which one ounce of sulphur has been added to each gallon of spray, at their first appearance in the summer.

By carefully examining and watching the plants early in the summer, the first spiders to appear may be detected on the lower leaves of the canes. At this stage it is possible to give such a thorough spraying with kerosene emulsion and sulphur, with an upshot nozzle, as to practically eliminate further trouble for that year.

After the plants become thoroughly infected with spiders it is impossible for the plant to mature a crop of fruit, even though the berries be half or two-thirds grown. So, while a thorough spraying would injure or entirely destroy the crop, the spider would any way, so you might as well get it as to permit the spider to destroy it.



MICHEL'S EARLY, B. (MALE)

enemies and new conditions to confront. This root disease, or fungus of the roots of the Antwerp, appears to be one of these conditions. Where they are grown on very rich land, or land that has only recently been cleared off, the roots are sometimes diseased. Thus far we have no definite remedy, but would advise that all diseased plants be removed and their parts burned. Cuthbert may be set in their places at once, since this root trouble does not seem to affect them in the least.

If the disease is neglected and one continues to hoe and cultivate the healthy plants with the same tool that is used among the diseased plants, it will soon spread to all parts of the field.

#### Red Spider

The red spider was unusually troublesome last year, not only upon berries but upon practically all kinds of fruits, and in a few cases upon fruit and shade trees.

The unusually hot dry weather of the summer season, and long spell without rain, is probably more responsible for their numbers than any other single phase.

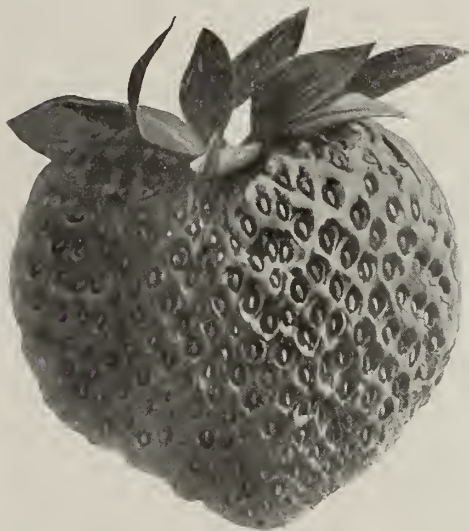


PARSONS' BEAUTY, B. (MALE)

## STRAWBERRIES IN BRITISH COLUMBIA

GEORGE EVERY-CLAYTON, BURNABY LAKE

THE first question of interest to beginners in strawberry growing is, "What variety shall I plant?" If you cannot determine from your neighbor's



BRANDYWINE, B. (MALE)

experience what variety is best suited for your soil and climate, the only thing is to experiment until you find out. Always remember when selecting from catalogues, that this phrase might well be tacked on to the end of the glowing description of any strawberry: "If it happens to be suited to your soil and climate." I prefer the hill system of cultivation, rows at least three feet apart and plants sixteen inches in the row. Before planting I cut about half of the roots off with a pair of shears, and all dead or faded-looking leaves. In planting, press the soil firmly round the plant. I use a small, wooden dibble, sixteen inches long, so that it serves for a measure for planting. All blossoms and runners should be cut, say once a week, and the hoe and cultivator kept going all spring and summer. The weeds should be kept down in the fall. Picking them into a bucket is a good way.

No mulch is necessary in winter on the coast. Cultivate early in spring. Run the tool shallow and keep it away from the plants to avoid tearing up the small roots that lie near the surface.

### Picking

The pickers should not touch the fruit at all, but take it by the stem and cut the stem about half an inch from the fruit by the thumb nail, and place in box. We provide our pickers with trays that hold six boxes. When these are full, the picker brings the tray up to the packing shed or tent and places the boxes on a table in front of the packer (usually the boss or some responsible person), who looks them over and calls the picker's attention to any unripe, over ripe, mashed, rotten or bird-pecked berries that he may see. If carelessness continues the picker's services are dispensed with. When a quantity of small and misshapen berries seem to justify it, they are packed into separate boxes and sold as No. 2s.

If conditions are favorable the man with only a few berries may dispose of them satisfactorily by retailing to private customers. There is, however, in

my opinion, only one way for the man with a quantity to sell them, and that is through a reliable commission man. Having once found him, stick to him and leave the selling to him, devoting all your own energies to seeing that the fruit is well picked, carefully and attractively packed, and conveyed to your commission man's store with the least possible shaking and jarring. I venture

## SUGGESTIONS ON HANDLING STRAWBERRIES

THE Hood River Fruit Growers' Union has issued a card containing rules for the picking, packing and hauling of strawberries. We print herewith:

### Picking

Berries must not be picked while there is moisture on the vines.

Berries must be pink all over or three-fourths red.

Berries should be picked riper in cool weather than in warm.

Pickers must not be allowed to hold several berries in hands at the same time.

Filled carriers must not be allowed to stand in the sun.



MARK HANNA, P. (FEMALE)

Berries must be picked with stem a quarter of an inch long, not longer or shorter.

### Packing

No culls in the boxes. Put nothing but fair sized berries, none under five tier. After filling box about half full place the rest stems down, so as to be able to face the top layer in uniform rows of four or five, making sixteen to twenty-five berries on top layer, all nice and level, stems down. Fill boxes solid, leaving no vacant spaces, especially at corners, or they will be short weight, settle, spoil your pack and bring less money.

Fill box so that top layer will come three-eighths of an inch above top of box. Allow no berries to project over side of box; if you do the berry will be crushed, the pack spoiled and the box stained.

Packers must be required to sort out

to say that he will save you time, trouble, possibility of bad debts, and make his own commission into the bargain. Send him badly picked and carelessly packed berries, and berries that have been driven over a rough road at ten miles an hour, and you will say that the commission man is no good.

As soon as the crop is off, we mow all the leaves off the plants and burn them and the straw right on the patch, and cultivate as usual. We usually take two or three crops off before plowing.

all green, overripe, misshapen and under five tier berries.

Use clean crates and keep them from being soiled.

After crates are nailed place them in cool side of packing house.

### Hauling

Haul in spring wagons, and use wagon cover to keep out dust. Growers are requested to send in a load as soon as ready. Do not wait until you are through with your pack for the day. If everybody waits until 6 p. m., as they have in the past, the Shipping Association will not be able to load the day's pack, as the car must be braced and ready at 10 p. m. Our crop will reach about two hundred cars, and we will send out from five to fifteen cars a day. These cannot be loaded after 6 p. m., or in three hours, so if you want your berries to go out the same day, do not delay in getting them to the depot.

### Remarks

Our crop is large. Other localities have large crops also. Therefore it will be necessary to observe these suggestions if you expect to get good results. People will not buy ordinary fruit, or a poor pack, and pay a price. Good fruit and a good pack will sell, even if there is plenty of the ordinary.

All berries will be rigidly graded and inspected, but everyone will be treated fairly and justly, without favor or discrimination. Our inspector will not find fault, but will endeavor to assist you with good advice.

By order of the board of directors.  
Hood River Fruit Growers' Union.  
E. H. Shepard, Sec. and Mngr.



HAVERLAND, P. (FEMALE)

# GENERAL FRUIT NOTES OF NORTHWEST STATES

**T**HE Marion County Horticultural Association at Salem has a movement on foot to consolidate with the Northwest Fruit Association, and has appointed a committee composed of S. H. Hatch, D. A. Crouse, C. J. Curtz, C. H. Long and E. C. Armstrong to investigate and determine on some definite proposition for consolidation. The Northwest Fruit Growers' Association packed and shipped about seventy carloads of high-class prunes this year. The Northwest Association is composed of many of the leading fruit men of the Willamette Valley.

George W. Stetson of Wenatchee sold his ten-acre tract to L. C. Wise of Idaho for \$23,000.

Many Easterners are purchasing land around Weiser, Idaho, to be set to orchards.

William Irish, Yakima, said the cold came on gradually this year and did no harm to his trees.

W. I. Huxtable, Yakima, reports that his orchard went through the extremely cold spell without being injured in any way.

Wenatchee is already beginning to feel the result of the National Apple Show at Spokane. Land values are steadily increasing and since the show ten acres sold for \$23,000. Inquiries are coming from all parts of the world.

The Idaho Fruit Growers' Association meeting at Caldwell, Idaho, in January was a splendid success. Interesting reports were given by Professor J. R. Shinn, W. N. Yost and J. R. Field about the National Apple Show at Spokane, and about the horticultural meeting at Council Bluffs by C. J. Sinsel and N. S. Miller.

A horticultural association has been organized at Grand View with N. G. Massey president, S. A. Lawrence vice president, J. F. Littooy horticulturist and J. S. Brown treasurer. Much credit is due Mr. Littooy, who has been taking a very active part in the welfare of Grand View.

The Grande Ronde Commercial Club, through their representative, William Hall, has shipped ninety boxes of apples

to Portland, where they will be kept in cold storage until the proper time for moving them to be exhibited at the Alaska-Yukon Exposition.

A. E. Wood, of Payette, Idaho, has sold twenty acres of fine orchard land to W. A. Fouts, of Missouri Valley, Iowa,



## SUPERLATIVE RASPBERRY

The Fancher Creek Nursery, Fresno, California, comments on the Superlative Raspberry as follows: Of English origin. Fruit red, large, conical, of excellent flavor, and a great improvement over all other varieties of raspberries. It is a continual bearer, producing fruit all summer, the fruit appearing on the young shoots which start from the plant. It is most useful as a dessert fruit and is readily plucked on account of its long stems. It is a great market variety and the experience with it on this Coast has exceeded the claims made by the introducers. It is worthy of general cultivation.

who will move to Payette in the spring and engage in the fruit business of the Northwest.

A new orchard company, recently organized under the name of the Stevens County Orchard Company by A. W.

Haas of Milwaukee, Wisconsin, has purchased 200 acres of land from B. F. Hammond, Colville, Washington, which will be set to orchard in the spring.

The National Apple Show is responsible, so says the Spokesman-Review, for a Chicago firm purchasing \$71,000 worth of raw land near Kennewick. The United Industry Company will put in 640 acres immediately, mostly in peaches. The tract will be divided into five and ten-acre lots at \$500 per acre, with a guarantee of a first-class orchard in first-class condition in five years.

H. M. Williamson, secretary for the Board of Horticulture for the State of Oregon, cautions people about importing trees from France on account of the gypsy moth. The gypsy moth has got a strong foothold in the Atlantic states and the damage done has amounted to over ten million dollars.

Wenatchee feels pleased over the arrival of three gold miners from Klondike, who have purchased land in the Wenatchee Valley. The miners will give up digging for gold and go into a business where "dollars grow on trees."

The Lewiston-Sweetwater Land and Water Company is reported as having sold 1,700 acres within the last two years. It is also stated that most of the land was sold at \$300 per acre, some locations being sold as high as \$450.

Kennewick reports that the trees were not injured by the severe weather. Yakima says that though this was the severest storm for years the trees have not been damaged.

The Lane County Fruit and Vegetable Growers' Association at Eugene reports a highly prosperous and satisfactory business for last year, amounting in value to \$57,000. The officers received the thanks of the fruit-growing members, and J. O. Holt, secretary and manager, came in for a good share of the splendid results.

The Linn County Horticultural Society has formed a union. Over thirty fruit growers have offered their names for the new union. Officers will be elected upon the perfection of the organization and the union will act with the Willamette Valley Apple Growers' Union as much as possible.

Fruit growers and horticultural experts of Lewiston, Idaho, claim that the damage done to the peach crop of that vicinity will be very light. Many orchardists claim that the cold snap will prove to have been a benefit, as it will make thinning unnecessary.

Colonel C. W. Mott, immigration agent for the Northern Pacific, says that the Northwest will be a great big fruit garden. He says that tracts of two acres and upwards will support a family. The Northern Pacific has sold off all of its land from Min-



ROLLA ADAMS' STRAWBERRY PATCH, WHICH BROUGHT HIM \$3.18 PER CRATE NET, WHITE SALMON VALLEY, WASHINGTON

neapolis to the Coast and is now giving its attention to populating the country with desirable people who will put the land to good use.

Kennewick fruit growers held a meeting on January 13 for the purpose of taking up and considering the erection of a warehouse. Arrangements for a site and right of way will be made by a committee. Probably by the time this article goes to press the building will have been completed.

In Hood River not a single grower has found any damage done to the fruit trees in any way during the exceedingly cold weather, the coldest Hood River has experienced in many years.

The Douglas County Fruit Growers' Association has elected the following board of directors for 1909: W. E. Davenport, N. D. McCall, H. N. Cobb, Joseph Wharton, Frank Brown, I. A. Dean, Mrs. C. H. Bristol, S. N. Woodward.

There is talk of an apple show being held at Chicago the coming season. It will be a grand advertising scheme for Western boxed apples.

Robert S. Coe of Canby was elected president of the Clackamas County Horticultural Society for the coming year at the last meeting. The society will maintain an exhibit at the rooms of the Oregon Commercial Club similar to the one that is maintained at Hood River.

D. N. Gellatley, secretary of the Commercial Club, Wenatchee, reports that the number of inquiries received now is greater than ever before.

Fruit Inspector Bateham, of Grants Pass, in his report last week says that the fruit outlook for the coming season is better than ever and the fruit much improved.

Kansas reports a seedless apple. This is nothing new. It is of no great value to any one so far as we know. We have never seen a seedless apple that was of any account, anyhow.

Wenatchee, Washington, reports that the fruit crop has suffered no injury from the severe cold, and the indications at present are all in favor of an immense crop for the coming season.

R. F. Crittendon, Portland, has purchased 2,000 acres of land in Denmark, Curry County. Mr. Crittendon is very enthusiastic over the prospects of that part of the country and will go into the fruit business extensively.

G. H. Ryan, manager of the Lake Chelan Fruit Growers' Association, reports a very prosperous season. The growers are very much encouraged over the increased prices and there is going to be a large acreage set to orchards this year.

Mr. F. R. E. DeHart, of Kelowna, British Columbia, is very pleased over his success at the Spokane Apple Show. Fruit growing is increasing very rapidly in that vicinity and the country is developing very rapidly and people are beginning to see what can be done in the fruit industry.

G. W. R. Peaslee, of the Vineland Nursery Company of Clarkston, says that the shortage of nursery stock, espe-

past two years and the orchard acreage is increasing rapidly.

Louis W. Hill, president of the Great Northern, declares that within twenty-five years the apple crop will exceed the present output of wheat, ore and timber. The present output of wheat, ore and timber for Washington, Oregon and Idaho is \$250,000,000 annually. President Hill is well known, and if this prophecy comes true, and his prophecies generally are true, it won't be long until these states ship \$250,000,000 worth of fruit annually.

Professor O'Gara a short time ago delivered one of the most interesting addresses on fruit diseases to the fruit growers in Southern Oregon. The meeting was composed of growers from all parts of the valley.

A meeting has been held at Albany by the fruit growers for the purpose of forming an association. The object is to secure a market for the magnificent apples grown in that vicinity.

Morland Bros. Manufacturing Company, of Seattle, is intending to erect a cannery at North Yakima this season at a cost of about \$15,000.

Milton Fruit Growers' Union reports a very prosperous year. The fruit sales for the past season have amounted to nearly \$80,000. Manager H. D. Lamb has done much to make the past season a successful one.

The results of the National Apple Show at Spokane are being felt at Moscow, Idaho. Two carloads of apples were shipped by the Latah Fruit Growers' Association to New York. Judge Forney had a prize exhibit at Spokane



H. J. NEELEY, MANAGER NATIONAL APPLE SHOW, SPOKANE  
The man who made the Apple Show a success.

cially in the standard varieties of apples, is becoming serious. Nurseries of the Northwest have suffered famines for the



CORNER OF THE UTAH FRUIT EXHIBIT AT NATIONAL HORTICULTURAL CONGRESS  
COUNCIL BLUFFS, IOWA, 1908

The exhibit of fruit was in charge of Professors Northrup and Titus and J. Edward Taylor, secretary of the State Horticultural Society of Utah. The illustration shows a few of the many trophies won by the State of Utah for its fruit at various exhibitions in America. The large cup in the center was the sweepstake cup won at the National Irrigation Congress of 1908 at Albuquerque, New Mexico.

and it has not only brought his apples into prominence, but those of the whole community.

The Grants Pass Fruit Exchange reports its apple season drawing to a close. It has been one of the most successful and Manager Scoville is certainly deserving of thanks for his labors.

The Puyallup cannery is rejoicing over the unqualified success it has met with during the past season. It is the intention to enlarge the cannery and prepare to do a larger business this coming year.

E. B. Hunt of The Cove Ranch, near Ashland, Oregon, is exhibiting some apples gathered in October, 1907. These

successful in producing the white strawberry. He claims to have produced two distinct varieties, one white and one red, that will bear through the full year.

W. Robinson, of Seattle, has purchased 400 acres of orchard land near Ellensburg. He will plant about 180 acres in orchard this spring. It is Mr. Robinson's intention to develop this tract into one of the most model orchards in the state.

The Lane County Fruit Growers' Association at its last meeting changed its name to Eugene Fruit Growers' Association. Dr. H. F. McCornack was elected president and J. O. Holt secretary and manager.



VICTORIA, BRITISH COLUMBIA, DISPLAY AT NATIONAL APPLE SHOW, SPOKANE

are wonderfully preserved and have not had the benefit of cold storage.

Chehalis, Washington, is planning to have a fruit and vegetable exhibit at the Alaska-Yukon Exposition. H. D. Chapman is putting forth his efforts to make this exhibit a successful one.

Hugo H. Lillenthal, a California horticulturist, announces that he has been

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At a meeting held by The Dalles Horticultural Association it was decided to organize a fruit growers' union for the fruit growers of Wasco County. A committee consisting of R. H. Weber, A. E. Lake and C. L. Phillips was appointed to proceed with the organization of the union.

Roswell Bewley of Yamhill County has sold 3,000 acres of land to I. A. Yerex, I. C. Stanford and George E. Wagner. This will be cut up into small tracts and set to walnuts. The price reported paid was \$100,000.

Canyon County, Idaho, is very elated over the prizes they have captured at the National Horticultural Congress, which was held at Council Bluffs, Iowa. H. W. Dorman, of Caldwell, was one of the big prize winners.

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WM. B. DYER, Calamus Lodge, Hood River, Oregon

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## SOME IMPORTANT NOTES ON SMALL FRUITS

BY J. O. HOLT, EUGENE, OREGON

ANYONE looking into the matter of small fruit varieties must have been surprised at the confusion in names of varieties. When we order Phenomenal berry plants, perhaps we will get logans, or we may get Black Logans when we order Primus.

The confusion is just as great with the red raspberry, currants and strawberries. This trouble is brought about in part by the great number of hybrids which have lately appeared on the market. No less authority than J. F. Littooy claims that the true Phenomenal has a four-petal flower. Out of a number of samples gathered from different

of the states it is a berry of good size and fairly firm, being a good money maker. The three varieties tried here proved absolutely worthless.

It must not be supposed that no Eastern varieties will succeed here, or that any one variety will succeed or prove a failure in all parts of this region. The strawberry known as "16 to 1" is a money maker in Southern Oregon, but is a failure here. The Clyde has many friends in Eastern Washington, but we have discarded it. With the introduction of new and closely related varieties and with the variations caused by climate, some confusion will surely follow.



KOOTENAI VALLEY EXHIBIT, FROM BONNER'S FERRY, IDAHO, AT NATIONAL APPLE SHOW, SPOKANE, WASHINGTON, DECEMBER, 1908

parts of the country, none of them have the four-petal flower exclusively, and the best of the lot produces a double flower, having eight, ten or more petals.

The Mammoth blackberry, which is a recent introduction, appears already with two distinct types. The original has dark green leaves in fair quantity; with the other the leaves are very abundant and light green in color. There is little difference in the fruit. I noticed this spring, when the two varieties were growing in adjoining rows, that the blossoms on the original variety were badly frosted while the others were not injured.

Another source of confusion is the variation of varieties under different climatic conditions. The Gandy strawberry, brought from the Eastern part of the United States, will make good growth the first season, but plants taken from these will, in about two generations, become entirely worthless. After receiving about sixty varieties of strawberries from the East and giving them a thorough test, we have discarded all but three, and they are hardly up to the standard of varieties originated here in the Northwest. Among the cane fruits, the purple cap raspberry is a notable example of this variation. In many

A great many of our growers of orchard fruits, as well as small fruits, are wasting their time and money caring for varieties not suited to their localities. Too much importance cannot be given to this fact. To be handicapped at the outset with kinds not suited to the locality cannot but result in failure. If you don't know what is best, and cannot find out, you had better wait for more light than to set any considerable acreage when in doubt.

No variety of cane fruits will succeed in ground on which water stands for more than a few hours at a time during the winter. Such ground, however, is well adapted to any of the vinous berries. I have had Mammoth blackberries and logans standing in water in spring until the young shoots were an inch or more long. Such a condition is not the best, to be sure, yet they showed no ill effects from the water. When the right man puts the right plant in the right place the result will spell success.

◆ ◆ ◆

Thirty-four thousand dollars is the price paid for eighty-five acres of orchard by Elmer Shank and C. C. Hall for the Eismann Brothers' ranch near Grants Pass.

## FEATURES IN THE GROWING OF SMALL FRUITS

BY L. D. WEST, BEND, OREGON

**F**OR strawberries a sandy or gravelly loam should be selected; for raspberries, blackberries and currants a rich clay loam. For all varieties of small fruit select a naturally well drained location. Land previously used for other crops is preferable, and if not already sufficiently rich, a dressing of about twenty tons of well decomposed stable manure to the acre should be plowed under before planting. A broken lava subsoil is ideal, especially for proper drainage.

**Fertilizers**—During the blooming season one hundred pounds nitrate of soda to the acre, applied in solution with water, will give quick results. Wood

ashes or hen manure sprinkled over the rows and mixed with the soil is profitable, and when it becomes necessary barnyard manure should be filled into the trenches between the rows.

**Irrigation**—Be careful not to force the fruit too soon by early irrigation. As a rule the spring moisture is sufficient until the earlier plants are in bloom. After the fruit begins to form, irrigate about once a week, which should be increased to every other day for strawberries and raspberries during the ripening season.

**Pruning**—After the fruit is all picked cut out all the old canes of raspberries and blackberries and in spring cut out the small and weaker canes. After the new shoots are about eighteen inches high pinch off the ends to make them drive laterals. For currants cut out the dead and weak laterals and sufficiently

thin the plants to admit sunshine. Cut the runners or stolens off the strawberries, but do not mow the tops.

**Planting**—For plants to be raised by irrigation set in rows if possible running east and west and not over two hundred feet in length on fairly level tracts. For strawberries raise the rows before planting and for other small fruits the rows can be raised about a year after planting.

Strawberries, plant two feet apart in rows four feet apart for matted row, and for hill system two feet apart each way. Plant any time from September 1 to April 1. Fall and winter preferable.

Currants and loganberries plant five feet apart in rows six feet apart. Plant in spring.

Red and yellow raspberries plant three feet apart in rows six feet apart. Plant in winter or spring.

Blackcap raspberries and blackberries plant three feet apart in rows eight feet apart. Plant in spring.

CAPITAL STOCK \$100,000 SURPLUS \$20,000

# FIRST NATIONAL BANK

HOOD RIVER, OREGON

F. S. STANLEY, *President*  
E. L. SMITH, *Vice President*  
E. O. BLANCHARD, *Cashier*  
V. C. BROCK, *Assistant Cashier*

ASSETS OVER \$325,000

*Savings Bank in connection*

## BRIGHT OUTLOOK — HARBINGER OF GOOD TIMES

The bright outlook for business conditions all over the country is not a new thing to the farmer. His prospects were brightened long ago by the invention of wonderful labor-saving and time-saving implements which have enabled him to increase his yield and market his output with corresponding increase of profits, despite depressed conditions in the industrial world. People must live, and to live they must eat. Whatever else they are compelled to do without, they cannot do without food, so that whatever adds to the efficiency of the farmer in his food-producing vocation, adds to his blessings. One of the most important factors in bringing about this condition was the invention of Planet Jr. Farm and Garden Implements. They have revolutionized the slow, laborious old gardening and farming methods and have put them in the class of twentieth century achievements. As an instance, No. 4 Planet Jr., which is a combination hill and drill seeder, wheel hoe, cultivator, furrower and plow, is the most complete tool a farmer or gardener can have on his place. He can do more work with it and keep things in better condition in one-sixth the time it would



take without it. The No. 4 is only one of the many Planet Jr. implements—there is one for every farm and garden task, whether for hand or horse power—and all of them are sold with an ironclad guarantee of absolute satisfaction.

S. L. Allen & Company, Box 11060, Philadelphia, Pennsylvania, who make these implements, have issued a handsome 56-page illustrated catalogue for 1909, which they are sending out to any one interested in better farming methods and labor-saving devices.

## UPPER HOOD RIVER VALLEY

Cheap and the best of land. Plenty of water for irrigation at low rates. Good transportation facilities. You are cordially invited to see what I have done at my home in six years. I handle these lands.

W. H. MARSHALL  
Dee, Oregon In Hood River Valley



PLANET JR. 12-TOOTH CULTIVATOR  
A perfect tool for cultivating strawberries and all garden truck.



SPOKANE RIVER CANAL

## The Berry Patch of the Northwest

"ASK THE FARMERS"

S. S. Brown, Greenacres, Wash., sold \$550 worth of Strawberries from one acre  
Justin Clark, Greenacres, sold \$669 worth of Dewberries from three-quarter acre  
J. W. Nipple, Greenacres, received \$120 net from one-fifth acre Black Raspberries  
S. S. Straham, Greenacres, received \$260 net from 750 vines of Black Raspberries  
*Actual Results from Crops and Market in the Great Winter Apple District in the SPOKANE VALLEY, under GRAVITY IRRIGATION SYSTEM*

WRITE FOR INFORMATION

## Becher & Thompson

110 STEVENS STREET  
SPOKANE, WASH.

## DEPENDABLE BRAND LIME AND SULPHUR SOLUTION

*The Only Spray Factory in the Willamette Valley*

We guarantee you a 30-degree test and full 50-gallon barrels of LIME AND SULPHUR SOLUTION at a price lower than ever.

One hundred dollars forfeit will be paid to any one who will find in an original barrel of DEPENDABLE BRAND LIME AND SULPHUR SOLUTION anything other than the chemicals produced by the combination of pure lime and sulphur.

FOR PRICES AND FURTHER INFORMATION ADDRESS

**Gideon Stolz Company, Salem, Oregon**  
Telephone Main 26

LESLIE BUTLER, President  
J. N. TEAL, Vice President  
TRUMAN BUTLER, Cashier

Established 1900  
Incorporated 1905

## Butler Banking Company

HOOD RIVER, OREGON

Capital Fully Paid \$50,000

Surplus and Profits are \$20,000

We give special attention to GOOD FARM LOANS

If you have money to loan we will find you good Real Estate security or if you want to borrow we can place your application in good hands and we make no charge for this service

CHAS. G. PRATT, President  
R. W. PRATT, Cashier

J. H. OSBORNE, Vice President  
M. M. HILL

WILSON FIKE  
C H. STRANAHAN

## Hood River Banking & Trust Co.

HOOD RIVER, OREGON

We own and occupy the finest equipped and most modern bank in Hood River County

A General Banking and Trust Business Transacted  
Safe Deposit Boxes Interest paid on Time and Savings Deposits  
Make Our Bank Your Headquarters When in Hood River

Correspondence Solicited

Your Patronage Solicited

## LADD & TILTON BANK

ESTABLISHED 1859 Oldest Bank on the Pacific Coast

PORTLAND, OREGON

Capital Fully Paid \$1,000,000  
Surplus and Undivided Profits \$500,000

Officers:  
W. M. Ladd, President R. S. Howard, Jr., Assistant Cashier  
Edward Cookingham, Vice President J. W. Ladd, Assistant Cashier  
W. H. Dunckley, Cashier Walter M. Cook, Assistant Cashier

INTEREST PAID ON TIME DEPOSITS AND SAVINGS ACCOUNTS

Accounts of banks, firms, corporations and individuals solicited. Travelers' checks for sale and drafts issued available in all countries of Europe.

### Better Fruit Subscription List February 1, 1909

Alabama .....	6	Pennsylvania .....	100
Arizona .....	4	Rhode Island .....	3
Arkansas .....	8	South Dakota .....	21
California .....	92	South Carolina .....	1
Colorado .....	268	Texas .....	17
Connecticut .....	7	Tennessee .....	4
Delaware .....	5	Utah .....	108
District of Columbia .....	6	Virginia .....	13
Florida .....	3	West Virginia .....	4
Georgia .....	2	Vermont .....	8
Indiana .....	29	Wyoming .....	4
Illinois .....	148	Wisconsin .....	52
Idaho .....	208	Washington .....	2015
Iowa .....	75	Wenatchee V. ....	443
Kentucky .....	4	Yakima Val. ....	351
Kansas .....	24	E. Washgton. ....	265
Louisiana .....	7	Sound Dist. ....	218
Maine .....	5	Spokane Dist. ....	137
Massachusetts .....	41	W. Salmon V. ....	101
Maryland .....	1	Walla W. Dist. ....	42
Michigan .....	48	General .....	453
Mississippi .....	1	(This embraces 202	
Minnesota .....	146	towns in Wash-	
Missouri .....	45	ington.)	
Montana .....	101	British Columbia ..	402
New Hampshire .....	3	England .....	9
New York .....	103	Scotland .....	2
New Jersey .....	18	Germany .....	3
North Carolina .....	4	Italy .....	1
Nebraska .....	55	Philippines .....	1
New Mexico .....	13	South America .....	2
Nevada .....	7	Alaska .....	2
North Dakota .....	33	Australia .....	1
Oregon .....	2227	Mexico .....	2
Hood R. Val. ....	445	Hawaiian Islands. ....	5
Willamette V. ....	340	Turkey .....	1
Portland Dist. ....	301	Panama .....	1
Rogue R. Val. ....	247	Porto Rico .....	1
East'n Oregon. ....	167	China .....	2
Dalles Dist. ....	141	Korea .....	3
General .....	586	South Africa .....	1
(This embraces 186		News stands, com-	
towns in Oregon)		mmercial clubs, de-	
Oklahoma .....	9	velopment leagues,	
Ohio .....	65	etc. ....	600

Total list of subscribers.....7210  
Circulation .....9000

Seventeen different states are represented by firms and factories in the advertising columns of "Better Fruit":

Washington .....	31	Kansas .....	1
Oregon .....	87	Montana .....	4
Montana .....	5	Ohio .....	2
California .....	5	Colorado .....	1
Pennsylvania .....	1	Iowa .....	2
Illinois .....	5	West Virginia .....	1
New York .....	3	Michigan .....	3
Nebraska .....	1	District of Columbia. ....	1
Missouri .....	1		

Readers of "Better Fruit":

We hereby certify that we printed 9,000 copies of "Better Fruit" in February and 9,000 copies in March.

F. W. Baltes & Co.

◆ ◆ ◆

Snohomish, Washington, Feb. 10, 1909.  
Mr. Harry N. Leckenby.

Brighton Beach, Washington:

Dear Sir—In reply to your request for my opinion of the Superlative raspberry will say that I regard it as being a berry of great merit and which should be largely introduced.

I have tried a number of the different varieties of the raspberry and in my experience the Superlative outranks all the others as to size of berry and productiveness. I think it will prove good as a shipper. As to the quality of the fruit, by many it is preferred, the acid not being so prominent as in some other varieties. The bushes are very vigorous growers; become large and stand erect. The berries hold on well to the bushes, with a long bearing season.

My experience prompts me to say that this berry is particularly adapted to sandy or light, porous soils. I think this will apply to any raspberry, but more particularly to the Superlative than to other varieties. Taking it all in all, I think the Superlative raspberry worthy a fair trial upon its merits.

Yours respectfully,

D. F. Sexton.

## A NEW BOOK ON STRAWBERRY CULTURE

WE are just in receipt of a copy of the 1909 edition of R. M. Kellogg Company's "Great Crops of Strawberries and How to Grow Them." This book has already become famous wherever strawberries are cultivated, but this edition excels in practical value, as well as in typographical beauty, all previous issues. It is a veritable picture book, containing more than one hundred beautiful half-tones, and in no other book which we have seen is there so much condensed information and instruction as to the how and why of strawberry culture as we find in this book. It is written in such a style as to arouse the enthusiastic interest of all lovers of the strawberry, and it should be in the hands of all who wish to achieve the highest success with this most delicious of the small fruits.

Not the least interesting feature of this book are the facts and figures it contains relating to the famous Kellogg Farm itself. From these we learn that the farm consists of 220 acres of as fertile land as may be found anywhere. Each year one hundred acres of strawberry plants are grown. In 1908 there were 292 miles of plants on the farm, which would make a continuous row extending from Chicago to Detroit and twenty-eight miles beyond into Canada.

To cultivate these plants during 1908 required that the men who follow the cultivators travel 17,520 miles. What this means may be comprehended when it is understood that it equals five trips from New York to San Francisco, with 1,165 miles to credit on the sixth trip. The number of plants grown annually is somewhat in excess of twenty million.

To spray these great fields requires 22,500 gallons of material. To fertilize them requires more than 2,000 tons of manure each year; the freight bills on manure in 1907 alone amounting to more than \$1,700. Each fall these great fields are mulched with straw, and 350 tons of fresh straw are annually purchased for this purpose. In shipping these plants sphagnum moss is employed to protect and keep them moist, and it requires forty tons of this material for this purpose. The annual postage bill of the company averages between \$7,500 and \$8,000.

As reflecting the comparative value of the Kellogg plants, it is interesting to know that, while the average production the country over, according to the census reports, is 1,700 quarts to the acre, those who grow fruit from the Kellogg Thoroughbred plants produce from 8,000 to 15,000 quarts to the acre. We find in this book the statement from O. J. Wigen of Creston, B. C., that in the season of 1908 he picked 53,000 quarts of Kellogg strawberries from four acres of land.

The R. M. Kellogg Company's wonderful strawberry plant farm is located at Three Rivers, Michigan, and we advise our readers to send for a copy of this book if they would learn very much of value relating to strawberry production in all its phases. The book is free to all of our readers who will ask for it.

THROUGH the courtesy of the C. H. Lilly Company, Seattle, "Better Fruit" shows on the cover page the handsomest illustration of the Superlative raspberry ever produced. This raspberry has the reputation of being

one of the very finest raspberries grown and we take pleasure in recommending it. The C. H. Lilly Company is doing a great deal to introduce this splendid raspberry. Growers wanting to try the Superlative raspberry will make no mistake in writing the C. H. Lilly Company, whose advertisement appears elsewhere in this issue.

THROUGH the kindness of the R. M. Kellogg Company, Three Rivers, Michigan, we produce in this issue the article entitled, "How to Grow Great Crops of Strawberries," written by Mr. Frank E. Beatty, president of the company. We desire to extend our thanks for the magnificent cuts used to illustrate the article, and we take great pleasure in recommending the R. M. Kellogg Company to growers who need berry plants. This company has the largest strawberry plant nursery in America, and as the editor has had plants from them we know their plants are unsurpassed.

## W. F. LARAWAY

DOCTOR OF OPHTHALMOLOGY

EYES  
TESTEDLENSES  
GROUND

Over 30 Years' Experience

TELESCOPES, FIELD GLASSES  
MAGNIFIERS TO EXAMINE SCALEHOOD RIVER, OREGON  
AND GLENWOOD, IOWA

## "FRIENDS" THAT ARE MAKING FRIENDS

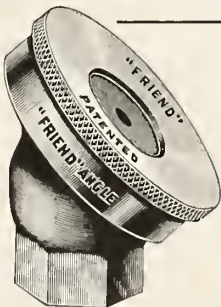


FIGURE 18A



FIGURE 18R

## "FRIEND" NOZZLES

POSITIVELY our own idea. Any others like them are infringements. The original large spray nozzles, doing away with the cluster. The only ones with the maker's name and the word PATENTED stamped upon them. No horns, no hooks, nothing to catch, drip or clog. Makes the finest mist-like spray. Drives the spray farther into the trees than the cluster. The ANGLE sprays up under the leaves and down into the CALYX. The REGULAR is for ordinary work. State which is wanted. Satisfaction guaranteed.

Price, each, wrapped in a neat box, \$1.00



## 1909 "FRIEND,"

Fig. 1 orchard model. Big wheels, short turning, low down. Perfect agitator. Improved throughout. Complete, ready for the horses. The kind they are all buying. Compare its features with other makes. Give it a chance and it will speak for itself.

Price, \$260.00



"FRIEND" Angle, Double-Ball Shut-off. Cannot leak. Keeps the hands and legs dry. Has a thousand advantages over the "shower-bath" cheap stoepock. Hundreds of them in use. Satisfaction guaranteed.

Price, \$2.00

Postage, 20c



THE "FRIEND" Large Size Hand Pump has put the name "FRIEND" into the hearts of hundreds of the most up-to-date fruit growers of the whole world. It bears all that the name implies. The first premium for the best plate display of apples at the Spokane Apple Show.

Price, \$25.00

The premium for the best ten-plate display of apples at the National Horticultural Congress was a 1909 Model "FRIEND" Power Sprayer. The apples in question were sprayed with the "FRIEND" 1908 Model Power Sprayer and "FRIEND" Nozzles. The best fruit growers use the best Sprayers

Tell us what thy needs are, give us a chance, and we'll give thee a good, old-fashioned "Quaker deal."  
Our 1909 sales are doubling any previous season.  
Our pretty new catalogue is free.

**FRIEND MF'G CO.**  
Gasport, Niagara Co., N. Y.

Fruit growers who want the best, speak now. Agents who would enjoy "Friendly" feelings with their customers, write for discounts. Deliveries on the complete line are continually being made.

Quick deliveries from our Oregon State Representative, M. L. KLINE, PORTLAND, OREGON

## THE FRUIT ACREAGE OF KICKITAT COUNTY

I WISH to express my appreciation of the statistical tables recently printed in "Better Fruit." Such statistics are very instructive to the apple growers, and I hope we shall have more of them. You recently published in tabulated form, "Fruit Trees in Washington by Counties." According to these statistics, Klickitat County was allowed 220 acres planted to apples. This statement does an injustice to Klickitat County, and especially to White Salmon. Standing at a desk with a friend and calling off the orchards we knew, the acreage

of which we could vouch for, we named 104 orchards with a total acreage of 927. This does not include a large acreage which will be planted in the spring, nor the orchards upon the Underwood bluff, which are a part of the famous White Salmon country but which lie in Skamania County. There are now upwards of one thousand acres planted to apples in the White Salmon Valley. It will be more than this next spring. Add to this a large acreage at Timber Valley, Columbus, Goodnoe Hills, Goldendale and Lyle, and the total acreage for Klickitat County should be at least 2,200 instead of 220.

Set the alarm clock for someone else, Mr. Editor. White Salmon, Klickitat County, Washington, is not asleep. The Spokane Apple Show gave us a second prize on Yellow Newtowns. They were "a little green" and would keep too long—if an apple can. We also took the prize for the best commercial pack, and are producing "the best apples that grow." Yours truly,

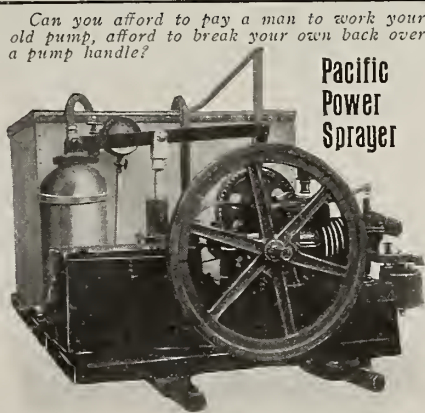
Daniel W. Dexter.  
President White Salmon Valley  
Development League.



Florence, Oregon, September 14, 1908.  
Monroe & Crisell, Portland, Oregon:

It may be of interest to you to know under what conditions dairying is carried on on the Siuslaw River. In the first place, it is eighty miles from Florence to the nearest railroad point. Of this distance cream is sent by boat the first twenty miles, thence by wagon sixty miles to Junction City, thence by express to Portland. You can readily see that it is very important to get as many pounds of butterfat in a can as possible. It costs \$2.50 from Florence to Portland per 100 pounds of cream, hence it is very necessary to skim a thick cream. The "Simplex" is a leader here, and when it comes to skimming a thick cream, it seems to be in a class by itself. There are fifteen "Simplex" separators here skimming the milk from about 215 cows. The check test of all the separators shows about 60 per cent. The highest testing cream that has been sent by a "Simplex" user tested 74 per cent fat. It is practical to test a 60 to 65 or 68 per cent cream when the milk is warm and bowl speed maintained.

Yours truly,  
W. R. Jephcott.



Pacific  
Power  
Sprayer

Maintains pressure up to 250 lbs. Weighs 250 lbs. or less. One horse can handle it on a sled or truck. Adjustable capacity for 2, 4 or 6 nozzles. Write for particulars. Price \$150.00. It is a direct acting pump with no valves; has but one plunger to pack; has but two regrounding swing check valves specially adapted for spraying solutions, which are located in the pipe and not in pump; can be cleaned and replaced in less than a minute. The engine is of the air-cooled type, with make and break igniter; with a system of back gearing the ratio of power is made 1 to 40. Power enough and then some. Engine no trouble-maker, but reliable and fully warranted.

Manufactured by  
BEIERSON MACHINERY CO., Portland, Oregon

WITH the great quantity of fruit trees that are being set out proper efforts should be made by people interested in fruit towards increasing the consumption in every way possible in advance of the coming increase, in securing proper refrigerator cars and assisting the fruit grower to deliver his fruit at distant points in good condition. These factors are probably the most important things to be looked to in the way of increasing the consumption of fruit. It behooves every horticultural association, every fruitgrowers' association, every shipper and every individual grower to improve the refrigerator service and to quicken the transit of cars of fruit.

## PATENT TREE FENDER

The accompanying cut is the only invention in whiffletree fenders: patented December 1, 1908.

It is a well-known fact that whiffletrees injure fruit trees by removing the



bark and oftentimes scarring the trees as the horses are driven through the orchard in plowing or cultivating.

The object of my invention is to provide simple and efficient means for preventing the outer ends of the whiffletrees from skinning or bruising the trees.

Every fruit grower buys them on sight. The retail price is \$1 per pair; wholesale, \$9 per dozen.

Manufactured by C. H. Smith, Free-water, Oregon.

## Government Guarantee of Deposits

already exists for owners of trade-marks. Apple growers should trade-mark their product. Consumers will then know your delicious apples by trade-mark. Consumers will then insist on the trade-marked apples. Total cost of trade-mark, 50 Dollars. Send for circular, "How to Get Twice as Much for the Same Fruit." G. H. MANN, 213 Fourth Street Southeast, Washington, D. C.

## POULTRY on a FRUIT FARM

Write for Special Information regarding Our Poultry Foods, Rations, Remedies and Supplies



Largest Manufacturers of  
Poultry Supplies on the Pacific Coast

Practical chicken men universally concede  
**OUR LEADERSHIP**

**SPECIAL ATTENTION to Fruit Specialists who are Amateur Poulterers**

Write for our Poultry Book

The Chas. H. Lilly Co.  
SEATTLE PORTLAND

## Read What They Say at PULLMAN COLLEGE RIGHT HERE IN THE PACIFIC NORTHWEST ABOUT EAGLE BRAND ARSENATE of LEAD

FAR SUPERIOR IN  
DESIRABLE PROPERTY

Pullman, Wash.—More striking differences were observed in the tendency of the compounds to remain suspended in water or to settle quickly when mixed with water. Its ability to stay in suspension, a property very desirable for spray purposes, the Eagle Brand is far superior to any of the others. This was even more noticeable after longer standing. (Report shows the proportion was 10 to 1).

B. W. THATCHER, Station Chemist.

WE ADVOCATE ITS USE  
AT EVERY OPPORTUNITY

Pullman, Wash.—Eagle Brand Arsenate of Lead has given better results than any of the other brands of arsenate that we have tried. The differences have been so marked that I do not hesitate to recommend your brand to anyone inquiring. Gives entire satisfaction in controlling Codling Moth as well as other insect pests and we are advocating its use at every opportunity.

A. L. MELANDER, Entomologist.

Eagle Brand adheres to foliage forming a thin film which is not easily washed off by rains, and therefore does not require repeated applications involving much expense. It is particularly well suited for spraying tender foliage because it does not scorch even when applied in strongest solutions. It remains in suspension a long time without requiring constant agitation.

For information, folder and prices address the great Seed and Supply House. Also write for Spray Book

THE CHAS. H. LILLY CO., SEATTLE AND PORTLAND

## THE ADAPTATIONS OF GYPSUM (LAND PLASTER)

BY PROF. G. W. SHAW, UNIVERSITY OF CALIFORNIA

**What Is Gypsum?**—Gypsum is a natural compound of lime with sulphuric acid, and is known to chemists as sulphate of lime. In the early time it was called "land plaster." Gypsum is one of the most powerful agencies known to successful and intelligent agriculture. It has been used as a fertilizer from the time of the Greeks and Romans.

There is a story that Benjamin Franklin sowed gypsum upon a clover field so that the words "This has been plastered" were written in gypsum upon the middle of the field, and could be reread there because of the more vigorous growth of the plants as long as the crop remained.

**Gypsum Renders Natural Plant Food More Available**—There are three primary plant foods, potash, phosphoric acid and nitrogen. To these should be added lime as materially influencing the availability of the two former. These are so-called "critical soil elements," which constitute the valuable portion of direct fertilizers. Gypsum is mainly an indirect fertilizer. It acts by setting free plant food already in the soil and rendering it available for plant use. Much of the natural supply of plant food in the soil is in an unavailable condition. Gypsum so acts upon this chemically as to render it immediately available.

It also has a secondary and direct action in supplying plants with both lime and sulphur, both important elements in plant economy, in case the soil is deficient in these ingredients.

**Gypsum Furnishes Potash to Plant**—The indirect action of gypsum previously referred to is mainly exerted upon the unavailable potash compounds of the soil. Potash is an extremely important element in plant growth. Plants vary much in the amount of potash they consume, but it enters more or less into the composition of all, and it is found in some in large amounts. Numerous investigations show that when potash is deficient in the soil, or unavailable, plants suffer greatly, the woody portion of the plants and the fleshy parts of the fruit being dependent upon the influence of available potash.

**Gypsum Is a Positive Antidote for Black Alkali**—From this standpoint alone gypsum is of the greatest agricultural importance. Thousands of acres of exceedingly rich soils otherwise are just sufficiently tainted with this corrosive salt, carbonate of soda, as to render crop production upon them very uncertain. Such soils could be changed to a condition of extreme productiveness by the use of gypsum in reasonable quantity. Those who are familiar with alkali lands know how much more deadly to plant growth is "black alkali" than "white alkali." The active element of "black alkali" is the corrosive salt carbonate of soda, while that of "white alkali" is sulphate of soda, which is comparatively innocuous within reasonable limits to plants.

Dr. E. W. Hilgard, the great authority on soils, says: "This salt (carbonate of soda) acts injuriously, not only in corroding the crown of growing crops, and even of trees, but also by rendering clay soils almost untillable, and by dissolving out both the vegetable matter and part of the phosphates of the soil. The use of a proper dose of gypsum on such soil obviates all these troubles. It

neutralizes the corrosiveness of the soda, renders tillage easy, and restores to the proper condition the humus and the phosphates of the soil. It serves to correct similarly irrigation waters containing carbonate of soda, the continued use of which, without the corrective use of gypsum, would soon cause a fatal accumulation of "black alkali" in the soil. The use of gypsum in irrigation ditches, or on the land itself, will effectually prevent this trouble."

**Gypsum Is an Effective Agent for Reclamation of Soils**, as will be apparent from what has already been said. Many soils are so badly tainted with "black alkali" as to entirely prevent crop production. If not too badly affected, gypsum, combined with summer tillage, especially when irrigation and under-drainage can be employed, will render them profitable.

The California Experiment Station was able to thus bring land which ordinarily would produce no crop, not even salt grass, to a condition in which it yielded forty bushels of wheat to the acre.

Thousands of acres of agricultural land are "alkalied" just enough to "worry a crop," but by the judicious use of gypsum they may be made profusely fertile.

**Gypsum May Protect Trees and Vines** already planted from the worst effects of alkali by surrounding the trunks with it or with earth mixed with it. Seeds may also be thus protected in sowing and plants in planting.

The effect of gypsum on "black alkali" land is often very striking. The blackish puddles and spots disappear, the soil soon loses its hard, puddled condition and crumbles into a loose mass, into which water soaks freely, bringing up the previously depressed spots to the general level of the land and permitting free drainage. On the surface seeds will now germinate and grow without hindrance.

**The Amount of Gypsum Required per Acre** for the correction of alkali will, of course, vary with the amount of carbonate of soda in the soil all the way from a few hundred pounds to several tons in the case of strong alkali spots. It is not, however, necessary to add the entire amount at once, provided sufficient be used to neutralize the portion near the surface, and enough time be allowed for the action to take place. In very wet soils this may occur within a few days, in merely damp soils in the course of several months, but usually the effect increases for several years as the salts rise from below. It should be remembered that all of the foregoing statements refer to the effect of gypsum upon "black alkali" (sal soda), and that the material does not have any beneficial action upon "white alkali" (glauber salts).

**Gypsum Favors Development of Bacteria in the Soil** and thus becomes of special value in increasing the yield of legumes, as clover, alfalfa, vetches, beans, peas, etc. For ages gypsum has been used to increase the growth of red clover. But it is only a comparatively recent discovery that the growth of clover and related plants is very dependent upon certain bacterial development about their roots. Unless conditions for this



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bacterial development are favorable the legumes, or pod-bearing plants, do not make satisfactory growth. The presence of these bacteria is indicated by small nodules on the roots of the plants. The activity of these bacteria is favored by a neutral or alkaline soil. Now, the sulphate of potash set free in the soil by gypsum changes to carbonate of potash, and renders the soil very slightly alkaline, which favors this bacterial activity. Gypsum becomes then a specific for increasing the yield of legumes.

**Gypsum Increases Yield of Grapes**—L. Grandeau, the eminent French authority, reports some experiments, extending over a number of years, as to the value of gypsum in grape culture. These showed that applications of gypsum, both alone and in connection with barnyard manure, largely increased the yield of grapes.

Dr. James Withycombe, director of the Oregon Experiment Station, reports yields from an acre of fall-sown vetch, which received an application of one hundred pounds of gypsum April 17, and yielded 9.031 pounds of hay July 11, as compared with a yield of 7.394 pounds of hay from an adjoining acre used as a check. This was an increase of 22 per cent in favor of gypsum.

**Other Important Uses for Gypsum**—It favors the growth of many other plants, particularly cabbage, rape, turnips, hemp, flax and maize.

It is an active absorbent of ammonia gas, and thus becomes valuable in preventing loss of costly plant food in stable manure, especially that of a liquid nature, and in making composts. When mixed with decaying organic matter it

acts as a preservative and prevents the escape of the valuable and costly nitrogen. For this purpose it may be scattered with a liberal hand in stables and over manure heaps.

**How and When to Apply Gypsum**—

Gypsum is sold in a pulverized condition and is easily applied. It may be either plowed in, drilled in, placed about roots at the time of planting, or sown broadcast, depending upon the time of the year and condition of the crop. While it is more immediately effective if applied in the early fall or winter, it may be used at any season of the year without danger of loss. Its effect will not be noticeable, however, until it has been acted upon by either rains or irrigation water, to distribute it well into the soil and bring it into close contact with the soil ingredients.

The quantity to use will be entirely dependent upon circumstances. There is no danger from excess, as in the case of some materials, as it exerts no harmful effects. The usual quantity employed for use as a fertilizer is from one hundred to three hundred pounds per acre, while as an alkali corrective from five hundred to one thousand pounds per acre may be required.



The Puyallup and Sumner Fruit Growers' Association has re-elected the entire board of directors, with the exception of A. R. Keith, who has lately removed from the city. They are desirous of upholding the high standard of the organization, for which they have become famous.

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Entered as second-class matter December 27, 1906,  
at the post office at Hood River, Oregon,  
under act of Congress of March 3, 1879.

**WHAT THE FRUIT INDUSTRY MEANS TO THE STATE OF OREGON.**—The ordinary farm of 160 acres, be it grain, hay or stock, or any other farming industry, will support one family. Ten acres of fruit land will support one family and supply them with every comfort, we might add truthfully with every necessary luxury, which means that if all farming land suitable to fruit growing is set to fruit, that any given area or district of such land will support sixteen times as many people. The world recognizes the value of a front foot of real estate in the city, and it recognizes the value of an acre in the country, of a pig, a cow or a horse or any other article of merchandise, but it does not always stop to think of the value of a life as an asset to a community. The law recognizes a life as being worth \$5,000. A nation considers an individual in a community from a point of view as being so much wealth. The value placed thereon is \$5,000, consequently if a given area of farming land is converted into fruit and will support sixteen times as many individuals valued at \$5,000, it would mean that the wealth would be eighty times greater.

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**THE PORTER BOX BILL.**—The Porter Fruit Bill, of which we had an editorial in the January issue, is to come up for discussion by a committee appointed by the National Apple Shippers' Association at the Raleigh Hotel, Washington, D. C., January 26-27th. We are writing this article in advance of that time, although it will not appear until the March edition of "Better Fruit." The State Horticultural Society of Washington showed their enterprise and good judgment by giving this matter serious consideration at their annual meeting in Spokane in December. They showed better judgment in taking action on the matter and did just exactly what in our judgment seemed the proper thing to do—appointed and sent a representative to Washington D. C., to fight this bill. A prominent orchardist, Mr. J. L. Dumas of Dayton, was asked to go, and he cheerfully gave his time, the society paid his expenses, and he is now in Washington fighting this bill. Nothing has been done in the State of Oregon by the Society or by the Board of Horticulture or local societies or associations that we know of. If this bill passes we will be largely to blame, and if it does it will mean the loss of

millions of dollars to the fruit growers of Oregon. "Better Fruit" has placed the matter prominently before the public in an editorial in the January edition, and it has placed the matter prominently before the big dailies, and in addition has written personal letters to the State Horticultural Societies and every Congressman and Senator of this state. We hope this action on the part of the editor of "Better Fruit" will be the means of preventing the Porter Bill passing, at least the clause pertaining to boxes.

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**ATTENTION** in this issue is called to the article, "Apples Are Wholesome Food," by F. E. Merrick, Medford, Oregon.

Fruit is universally known, and is admitted by all physicians to be wholesome food. Eating fruit is a matter of habit, but it is a mighty good habit, a pleasant habit, and a habit that is agreeable to the taste. The editor, as a boy a good many years ago, although raised on an orchard would no more think of eating an apple for breakfast than he would fried pie, but times have changed. The American people are fast becoming a fruit eating nation, replacing the foods that are digested with difficulty with various kinds of wholesome fruit in season. This is not a rash statement. It is backed up by statistics. The population of the United States in the last thirty years has increased two hundred per cent. The fruit consumed in the last thirty years has increased two thousand per cent.

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**ON** account of the March edition being crowded the size of this issue was increased from forty-eight to sixty pages. Even this is not large enough and many articles prepared for this issue on small fruits and other important subjects will have to be carried over to the April edition of "Better Fruit," and any one interested in this number, and who wants valuable information on the topics taken up in this issue, should not fail to become a subscriber.

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**THE PORTER BILL.**—One rotten feature of the Porter bill pertaining to the grading of boxed apples, is a clause in reference to grading fancy apples. The Porter bill reads that all apples that come up to a standard that are 2½ inches in diameter, shall be graded "fancy," and all smaller "choice." This is rotten. The 2¼-inch apple is a 4½-tier apple. It can be just as fancy as a 2½-inch, or a 4-tier. In fact, they are put up just as fancy in the Northwest. Hotels and restaurants frequently prefer them. Many families buy them

in preference because they go farther with children. The quality of a 4½-tier apple is absolutely just as good as a 4-tier apple, but the Porter bill says not. Because a thing is small does not signify that it is inferior. As a matter of fact, smaller fruit is a little finer in grain than large sized, and it is well known that small size 2¼-inch apples, which the Porter bill would dub only "choice," are better keepers than the larger size. The Porter bill may be all right applied to Eastern fruit conditions but it is absolutely wrong in reference to its grading on Western apples, and the clause about the size of boxes is the grossest injustice that the Easterners ever attempted to perpetrate on the West.

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**PRICES OF FRUIT AT HOTELS AND RESTAURANTS.**—There is one means of increasing the consumption of fruit that, so far as the editor knows, has never been taken up or considered by fruit men, and that is the price of fruit as served at hotels, restaurants, on dining cars or steamers. All of us know, who have stopped at first-class hotels, that we have to pay fifteen cents for a baked apple with a little cream, and at the best hotels twenty-five cents and sometimes forty cents. We also know that the hotel man pays not over two dollars per box of one hundred apples, or about two cents apiece, for which they charge us twenty-five cents with just a small quantity of cream, which does not cost much. This rate of profit on fruit is far in excess of the profit he makes on all staple foods he supplies to his patrons. This certainly seems unfair to the fruit grower. There is no reason in the world, as far as we can see, why the profit made by hotel men or restaurant men on fruit should be greater than on anything else served. It is up to the fruit men to make a campaign against this discrimination, and we believe the fruit men are certainly strong enough to bring out ways and means of bringing about a desired reform. We believe if it is taken up at every horticultural meeting, if it is taken

C. M. SHAW

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up through every local paper, and if every individual made it a point to complain at every hotel and restaurant where he was charged these unreasonable prices, that such united effort would certainly go a long way to bring about the desired reformation. There is certainly nothing like the everlasting complaining on the part of every individual in the way of reforming evil. The National Apple Show at Spokane made arrangements with one large restaurant during the Apple Show week to have baked apples, or apples in any form, served with cream for five cents. The plan was a great success. Hundreds and hundreds of boxes were consumed by the patrons of this restaurant at this popular price. Every hotel man or restaurant man who is wide enough awake to start the ball rolling could not adopt any more effective means of advertising his business and increasing his patronage and profits.

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**GROWING FRUIT AS A BUSINESS.**—Growing fruit is just as much of a business as selling groceries or retailing hardware. Some men are successful and make a great deal of money and some men are failures. The industry is all right, providing the man is all right. In the fruit business there are probably less failures and less unsuccessful men than in any other line of business that we know of in the Northwest. In a conservative way, in a good district, where the right varieties are set, properly cared for and marketed in a business-like way, profits will vary all the way from one hundred to one thousand dollars per acre. The average profit might be put down in a good district from three hundred to eight hundred dollars, although there are many cases where very high-class varieties, when the yield was unusually good, have netted the grower one thousand dollars and possibly as high as two thousand dollars net profit per acre.

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**OVERPRODUCTION.**—Frequently people who know very little about the fruit industry bring up the subject of over-production on account of the great number of acres of fruit that exist in the Northwest. The bearing area of Oregon and Washington in each case is only four-tenths of one per cent of the area of fruit in the United States, which shows what a small percentage we are in the production of fruit at the present time and what the possibilities are in the future. Of course we fruit men know that no other district can compete successfully with us in the varieties we grow. Hood River is a small valley, but frequently the editor has heard a man speak of over-production on account of the area in fruit trees in this little valley. Evidently they little realize what an atom Hood River, or any other fruit section in the Northwest is, in the great fruit industry of America. The output of Hood River Valley in 1908 was 200,000 boxes of apples, averaging 100 apples to the box, which means 20,000,000 apples. The population of the United States is 80,000,000 people. If one person out of every four ate an apple today they would eat up the whole crop of Hood River apples in one day. We do not fear over-production for fancy high-class fruit, such as is grown in the Northwest.

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## A NEW METHOD FOR DRYING RASPBERRIES

BY M. B. SHERMAN, PAYETTE, IDAHO

LUTHER BURBANK says: "The man who adds a kernel to the head of wheat or ear of corn confers an untold blessing on the race." He would probably have said something encouraging to the men who reduce the cost of production if he had thought of it at the time. At any rate, the man who does so has a share in that honor and should take an honest pride in communicating his discovery to others. I therefore take pleasure in describing my method to your readers, believing that this method, which very largely reduces the cost of production of dried raspberries, will be of real value to the "arid West." I say, "arid West," as it is not applicable to humid localities. In short, I am now prepared, after ten years of experience, to state that the cost of producing dried raspberries should not exceed two cents per pound, and that they could be placed on the wholesale market in competition with dried prunes with still a margin of profit for the producer.

I dry the berries on the bushes, afterwards remove the branches bearing berries (the old growth) and thrash the berries off much as beans are harvested.

I discovered some years ago that the black raspberry does not soften, mildew

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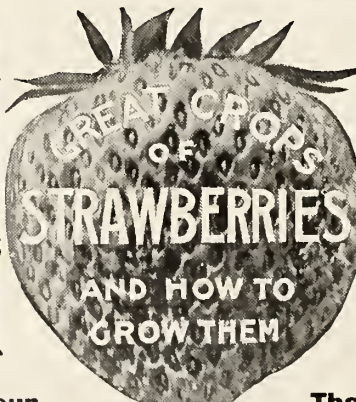
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

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

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and fall to the ground in this arid locality as in humid localities, but dries on the bush, where it will remain attached indefinitely, and that the quality of the fruit thus dried is even superior to the hand picked, evaporated article. I then predicted that I had made a valuable discovery, and although it has cost much time, worry and experience to reduce it to the present simple method with the results stated above, yet my prediction has been verified in a measure far beyond my expectation.

This saving of expense, amounting to eight or ten cents per pound over the ordinary method of hand picking and evaporating, means very much to the arid West, if indeed the West awakens to an appreciation of its opportunity. With this enormous advantage at our command and a thorough organization within our own ranks, we could, if we would, become the sole raspberry producing region of the world, with a greedy market to start with and unlimited room for market expansion. Dried raspberries command the highest price of any dried fruit on the market by about twice the value of the next highest article on the list.

My method in detail is as follows:

In the spring, after a thorough cultivation of the ground, I bend the bushes all over and secure them in a reclining position, by stretching a wire over them and staking the wire down at convenient intervals, thus preventing the oncoming new growth, which springs from the ground annually, from becoming entangled with the branches bearing berries. This completes the work till the berries are all ripe, and costs the labor of about one man to one acre per day.

When the berries are all ripe (and most of them dry), the cutter is brought into the field, drawn by one horse, a simple, sled-like device worth \$25. The cutter passes down the row, cutting away the branches bearing berries close to the crown of the plant and as rapidly as the horse walks, making five acres per day. Three men follow the cutter, rolling up the branches thus removed and standing them up in bunches against the remaining bushes till leaves and

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We will have ready for the market for fall or spring trade 200,000 each of Spitzenberg, Winesap and Yellow Newtown. In fact, about 1,000,000 trees of staples. We have the largest stock of Winter Banana apples in the West—stock from a famous orchard in Wenatchee. This is the coming commercial apple. We can handle your order, no matter what the size. Write to us at Sunnyside, Washington, for prices. Nurseries at Sunnyside, Grandview and White Bluffs.

Should Be in Every Home



**Catalog 1909**

**LILLY'S BEST SEEDS**

*Now Ready  
120 Pages—  
Send for it  
NOW - It is  
Free - and  
you need it*

THE CHAS. H. LILLY CO.  
THE BIG SEED HOUSE  
Seattle, Wash.      Portland, Oregon

branches are thoroughly dry. In a few days a wagon is driven into the field, with a box with high sides mounted on it. These bunches of bush and leaves, now very dry, are thrown into the box, where two men thresh the berries off with flails and immediately throw the brush out. I use ordinary dung forks for flails. Three men thresh about three acres per day. When the box is well filled with berries and leaves, an ordinary fanning mill is brought into requisition, to blow out the leaves.

The berries now appear with a thorny stem, about an inch long, attached to each berry. They are then taken to the cleaner, the only delicate, difficult machine in the business (cost, \$50), where one man, by hand power, can clean the stems from two thousand pounds per day.

The berries are then ready for the market, unless you want to dampen them, which is always done before they reach the retail dealer, and increases the weight materially. They are commonly sold to the wholesale groceryman in two-hundred-pound drums.

The total expense throughout the year, up to the day of shipping, should not exceed two cents per pound. My expense this season on the twenty thousand pounds produced, will fall below

## SPECIAL OFFER 100,000 ONE-YEAR APPLE JUST TO FURTHER ADVERTISE THE WINFIELD NURSERY TREES

The Winfield Nursery Company's "Quality Trees" are almost as cheap as common nursery stock. Why plant trees regarding the propagation of which you know nothing? Trees propagated in a haphazard way from third or fourth class unsalable stock or from scions cut from the nursery row for a series of years cannot give best results. Why breed cattle to butcher in two years from thoroughbred stock, but buy apple trees by chance to grow for thirty years?

### Apple Trees Bred to Bear

We grow them from the best individual types. Four hundred and twenty acres of this kind of stock is planted in our fruit orchards at Palisade, Colorado, and Green River, Utah.

### Orders for Two Years in Advance at \$50 per Hundred

Mr. Lord, of Emery County, Utah, after seeing our expert mark and score a variety for budding purposes, ordered us to book 100 trees of the variety for 1910. When told we could not tell price at that time, he said anything up to \$50 per 100.

### Thoroughbred Trees Show in Vitality and Growth

Artesia, N. M., December 12, 1908. The Winfield Nursery Company, Winfield, Kansas:

Gentlemen—Enclosed you will find draft for \$607.30 for credit on account of W. P. Galloway. Also attached are sending you list of names of those who have paid amount of draft.

Mr. Galloway and your Company are to be commended for the fine stock that you are sending to this section, and I believe that you are establishing a cus-

tom that will be very profitable in the future for your Company.

Kindly credit Mr. Galloway with amount of draft and oblige,

Yours very truly,

John B. Enfield,  
Cashier Bank of Artesia.

Hdyro, Okla., December 28, 1908. The Winfield Nursery, Winfield, Kansas:

Gentlemen—Your Company delivered \$6,000 worth of nursery stock here about November 20, 1908. The stock arrived in excellent shape. Every order of any size was packed separate in a box, and when unpacked was in just as good condition as if it had just been dug up out of the soil.

I have talked personally to at least three-fourths of the people who purchased this stock and every one whom I talked to said it was the best stock and packed in the best shape of any nursery stock they have seen in Oklahoma.

Very truly yours,

Roy M. Felton,  
Cashier Hydro State Bank.

Apples are scarce. This 100,000 will go quick. Write for catalogue and prices with list of wants today.

### PEACH

Queen of the United States  
Hottes Elberta

Only 10,000 of this famous world-winner left. Write for description of this peach. Orange Cling, Phillips Cling, Champion, Salway and other leading varieties all greatly improved in propagation.

Colton, Cal., December 30, 1908.

Gentlemen—Having placed a small order for some of your nursery stock with Mr. James Nelson, of Redlands, I would like a copy of your catalogue and guide for the care of trees. Should the stock I have ordered prove satisfactory I may become a good customer. I think Mr. Nelson has the finest one-year-old peach orchard from your stock in all this valley.

Yours truly,  
P. O. Box 387.

W. H. Gilmore.

### PEAR

Our Bartlett Pears at one year are better than the average two-year. In stock 5 to 6 feet, 4 to 5 feet and 3 to 4 feet. Beurre d'Anjou, one-year, 5 to 6 feet and 3 to 4 feet. Write for full description of The Winfield Nursery Company's one-year-old pear, equal to two-year-old. Keiffer, Clapp's Favorite, Winter Bartlett and others.

### CHERRY

The Home of the Cherry—Winfield, Kansas

We are the only large and successful growers of Mahaleb stock in the United States. We ship them to every state in the Union. All our cherries are grown on home-grown Mahaleb stocks and are far better rooted than the Eastern grown cherry.

Shade Trees in Almost Carload Lots  
Eight Carloads Last Year  
to Denver

Box Elder, Russian Mulberry, Soft Maple, Ash, Osage Hedge, Elm  
Buy Winfield Nursery Stock, Boxed in Paper Lined Boxes, Freight Paid

**THE WINFIELD NURSERY CO., (Incorporated) Winfield, Kansas**

J. MONCRIEF, President

E. S. MONCRIEF, Vice President

R. I. LEMON, Secretary-Treasurer

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

that figure. They will cost approximately one cent for harvesting and less than one cent for the balance of the work. I have hired most of my work done. Have not been much in the field this season because of illness.

The ordinary yield should be one thousand pounds per acre; while under ideal conditions I believe twice that amount might be realized.

Prices of dried raspberries are quite variable, ranging from fifteen to thirty cents per pound, with an average of twenty cents.

Considering the small investment necessary, regularity of bearing, early returns, broad margin of profit, it does not require a man of unusually keen business insight to foretell a brilliant future for the raspberry industry in arid America.

You will note that I remove the old growth and harvest the berries at the same time, thus accomplishing with horse power and comparative ease the two "hard jobs" in connection with raspberry culture, and at an approximate cost of removing the old growth by the ordinary method of pruning which must be done annually.

I now have thirty-five acres devoted to black raspberries, though not all in full bearing (you get a light crop in one year and a full crop in two), and am convinced that two men can do all the work on forty acres of raspberries by my method, with perhaps two men to help them during August.

I will leave it to some one who knows, to tell you how many men it would take to hand pick forty acres of raspberries, and where you would find the men.

**WE INDORSE**

## SCALECIDE

as the best Spray for PACIFIC NORTHWEST Fruit Trees. It kills **San Jose Scale**, all Soft-Bodied Insects and Fungus. Write for Booklet No. 204 and for FREE SAMPLE



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Sprays Fertilizers Horticultural Supplies

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THE DALLES, OREGON

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Grower and Dealer in FRUIT, SHADE AND ORNAMENTAL

# TREES

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GRAPE VINES & SMALL FRUITS  
EVERGREENS, ROSES & SHRUBBERY

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REMEMBER—OUR TREES ARE GROWN STRICTLY  
WITHOUT IRRIGATION

## Quality fruit brings quality prices

—but if in addition to quality you can deliver fruit on the markets weeks ahead of the regular supply, "quality prices" will change to the highest fancy prices. This has been proven many times. Do you want to do this? You can by planting trees of

### Stark Early Elberta peach

—This is the latest addition to our list of new trade-mark varieties, and we are pushing it with all the confidence which characterized our introduction of the Stark Delicious apple, Stark King David apple, and other special trade-mark sorts. It has a tremendous commercial future before it and those who plant it quickest are those who will reap the greatest returns.

—Stark Early Elberta peach is a seedling of the well-known Elberta, but superior to it in every way. It is better in quality, bright yellow flesh which is juicy and sweet; skin thin but strong and not too fuzzy. In shipping and keeping qualities it equals its parent. In addition to all these points of superiority over Elberta, its biggest point is its season of ripening—**fully two weeks earlier than Elberta.**

—The originator of Stark Early Elberta, Dr. Summer Gleason, Davis Co., Utah, wrote us last summer:

J. H. Hale, the peach king will be here Friday and will write you his opinion of the Early Elberta. Later: J. H. Hale could not come but sent his son. He says Early Elberta is away ahead of everything here.

Note by Stark Bro's:—J. H. Hale wrote us that peach growers need just such a peach as Stark Early Elberta, since it comes at a season when good peaches are scarce and is just in time to top the markets.

#### Utah Agricultural College—Experiment Station.

Last summer I visited the orchard and nursery of Dr. Gleason of Davis Co., Utah, and saw the Early Elberta and Elberta growing side by side. At the time of my visit Early Elberta was ripe, and in its prime, while Elberta was hard and green. Fully two weeks before Elberta would be ripe.

I brought back with me several specimens of Early Elberta in order to try their keeping qualities. Fruit was placed on a shelf in the office, exposed to light and heat. The fruit lay there for two weeks in as good condition as when picked. After this it began to wither, but was still in condition to eat two weeks later, or a month after being picked from the tree. The fruit dried up and is still on the shelf—just a bit of gummy pulp around the stone.

The habit of the Early Elberta tree appeared to me identical with the Elberta. Fruit in external appearance is just the same, but in texture I believe Early Elberta has a little finer grain and not quite so much "rag." It is juicy and sweet, with bright yellow flesh and a free stone; skin thin but strong, and is not too fuzzy.

I believe Early Elberta is one of the best varieties introduced since the first Elberta came. It will no doubt play a very important part in sections such as we have here, where growers do not want too many varieties, but must have early and late kinds. In Early Elberta one has all of the good qualities of Elberta, and the additional feature of early ripening. When this is taken into consideration, and when it is planted along with the original Elberta, much of the strain and congestion which comes with peach harvest will be greatly reduced. The shipping season will be lengthened.—E. H. Favor, Asst. Horticulturist, Dec. 29, 1908.

Having tested its shipping and keeping qualities thoroughly; without doubt it is the most valuable addition to the commercial peach list that has been introduced in recent years; an excellent shipper and as a keeper it has no rival.—L. Marsh, Hort. Inspector, Davis Co., Utah.

—Owing to the fact that the variety is comparatively new and that our time for propagating has been short, our stock is limited and as the demand is bound to far exceed the supply, we suggest early ordering.

**Stark Bro's Nurseries & Orchards Co.**  
**Lock Box** **Louisiana, Missouri, U. S. A.**

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140 VARIETIES

ANY QUANTITY

Plenty of Stock in our 40,000 Pounds

Growing Plants as Season Requires  
 All Makes High Grade  
 Pruning Tools  
 Garden Tools  
 Hose and Spray Nozzles  
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 International Remedies  
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 Everything for Building  
 Everything for Furnishing

**Stewart Hardware & Furniture Co.**

22,000 feet floor space

HOOD RIVER, OREGON

## Delicious again tops the market

The Hood River (Oregon)  
 Apple Growers Union made  
 this sale on October 11, 1908

DELICIOUS	\$2.50 per box
Ben Davis	1.00 " "
Baldwin	1.50 " "
Akin	1.50 " "
Jonathan	1.50 " "

This Delicious is the famous *Stark Delicious*, without which no orchardist is prepared to meet the demands of present-day buyers. 1,250,000 is the number of trees of Delicious we have grown this year to meet the demand—still we believe we are short.

### Have you tasted this royal fruit?

If not, we will send a box of 3 specimens on receipt of 25 cents to pay partial express charges. (No charge is made for the fruit). The 25 cents we will refund to you on the first order of trees sent us. Send for the fruit today and ask for our New Delicious Booklet. It's free.

**Stark Bro's Nurseries  
 & Orchards Company**  
 Louisiana Missouri U. S. A.

## BERRY ANTHRACNOSE AND BORDEAUX SPRAY

ONE year ago last July Professor Lawrence was detailed by the state experiment station to investigate anthracnose (blight) of blackberries. A detailed study of the disease and the fungus which caused it was made last year, and in accordance with the knowledge thus gained some spraying experiments were planned in order to determine the best method of control. Bordeaux mixture was used as a preventive and was applied as explained below. The experiments have not been brought to a close, but a few notes on the results will be of interest to berry growers.

Spraying experiments were undertaken by J. P. Gish, at Puyallup, and G. J. Anderson and Orton Brothers, at Sumner. Results have not been as gratifying as was hoped for, but they are good enough to encourage the use of Bordeaux on a more extensive scale next year.

Experiment at Puyallup—J. P. Gish sprayed some of his Snider blackberries with Bordeaux (4-4-50 formula—four pounds bluestone, four pounds lime and fifty gallons of water). Two applications were made; the first on May 4, when the plants were well leafed out, and the second on May 21, just before the blossoms opened. During the season the fruit was sorted at three different pickings. This work was attended to by Mrs. Gish. Five and one-half per cent of the fruit on part of the field not sprayed was blighted, while on the sprayed rows there was only 1.1 per cent of blighted fruit. These figures show that the total amount of blight though light was reduced by the use of

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NURSEYMAN

PORTLAND, OREGON

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## VINELAND NURSERIES COMPANY

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 FRUIT AND ORNAMENTAL

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Twenty years experience in seeding the Pacific Northwest speaks to you in this our very latest

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 JUST OUT—Write for it—Ask for No. 200

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## The Tim Kelly Nurseries

SURPLUS STOCK

30,000 Winesaps 8,000 Rome Beauties  
 27,000 Jonathans 2,500 Arkansas Blacks  
 2,500 Spitzenbergs

A large choice stock of apple, peach and pear in all the leading varieties for spring and fall delivery. Every tree grown in my own nurseries and under my own personal supervision.

*Tim Kelly, The Nurseryman*

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## Hood River Nurseries

Have for the coming season a very complete line of

## NURSERY STOCK

Newtown & Spitzenberg propagated from selected bearing trees. Make no mistake but start your orchard right. Plant generation trees. Hood River (Clark Seedling) strawberry plants in quantities to suit.

SEND FOR PRICES

Rawson &amp; Stanton, Hood River, Oregon

Buy and Try

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WHITER, LIGHTER BREAD

"THE OLD RELIABLE"

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ALBANY, OREGON

LARGE STOCK, FIRST CLASS TREES

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We have for this season the largest acreage of plants we ever grew. We have had unusually favorable weather and never grew such a fine lot of strawberry plants. Our supply consists of at least ten million plants of all the leading varieties, both old and new. We have shipped a large number of plants the past two seasons to the Northwestern states that have always given satisfaction. We are prepared to fill orders for any amount. We also grow Raspberry, Blackberry, Dewberry and all other small fruit plants, the quality of which is unsurpassed. If you want plants now, write for prices, stating your wants. Our new catalog will be ready to mail about January 1. It is FREE; write for a copy now.

**W. F. DIXON, Holton, Kansas**

the spray mixture. Further than this, the foliage for a time after the last application was a deeper green color than on unsprayed plants. The effect was hardly noticeable at picking time. The fruit, however, on sprayed plants was larger and glossier.

Experiments at Sumner—Orton Bros. sprayed a field of blackberries, consisting of Snyder and a few scattering plants of Kittatiny. Some plants were sprayed with Bordeaux (6-4-50 formula) just before the leaves came out. A part of these plants were sprayed a second time with Bordeaux (4-4-50 formula) just before they came into bloom. During the season several boxes of berries at two different pickings were gathered from plants that had not been sprayed, from plants sprayed once early in the season and also from plants sprayed twice. The first picking gave 21 per cent blighted fruit on plants that had not been sprayed, 7 per cent on plants sprayed once, and 2.5 per cent on plants sprayed twice. The second picking gave 37 per cent, 16 per cent and 8 per cent, blighted fruit in the order named.

G. J. Anderson sprayed a part of his Snyder blackberries once, and a part twice. The first spraying was done when the plants were well leafed out, and the second about three weeks later (just before the blossoms opened). On two dates during the season samples of berries were taken from rows that were not sprayed, those sprayed once and those sprayed twice. The first sorting of the fruit showed 34 per cent blighted on plants that were not treated, 25 per cent on those sprayed once, and 16 per cent on those sprayed twice. The second sorting gave 50 per cent blighted

**GOOD TREES**

The planter who sets in his orchard other trees than the best he can buy—is making a serious mistake.

A good tree at a fair price is cheaper than a poor tree or one of questionable worth as a gift.

Orchard land is too valuable to be encumbered with trees that will be a long time in bringing returns.

Our trees are grown on the Yakima Reservation, isolated from old orchards, being as a consequence, free from pest or disease, and, possessing a splendid root system, they make a rapid growth and come into early bearing.

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TOPPENISH, WASHINGTON

**Famous Hood River**  
**CLARK'S SEEDLING**  
**Strawberry Plants**

*Any Quantity, 100 to 100,000*

Price, \$1.00 per 100 by mail postpaid

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Write for special prices on large orders. Plants are fine.

Order before supply is exhausted. *Grown on our own grounds*

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HOOD RIVER OREGON

**Apple Seedlings**  
**NUMBER FOUR**

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APPLE GRAFTS PIECE ROOTS

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FOREIGN FRUIT TREE STOCKS

*Cherry, Plum and Pear*CONCORD GRAPES—*One and Two Year*CHERRY TREES—*All Grades**A Large General Stock**Submit List for Prices***Shenandoah Nurseries**D. S. LAKE, *Proprietor*

SHENANDOAH, IOWA

on untreated plants, 33 per cent blighted on row sprayed once, and 20 per cent on row sprayed twice. Mr. Anderson used Bordeaux (4-4-50 formula).

Results—The above figures show that the per cent of blighted fruit on plants that had not been sprayed varied from five to fifty per cent, and that the amount of blight increased toward the close of the picking season. They also show that the amount of blight on sprayed rows was somewhat less in all cases, those plants sprayed twice showing a less per cent of blight than those sprayed once. It is evident that the last spraying should be done later in the season than was practical this year. The plan for next year's work in the use of Bordeaux as a preventive will thus be

modified somewhat. Since fairly good results have been obtained. Professor Lawrence is anxious to give the spray a more thorough test next year on a much larger scale. Mr. Gish, Mr. Anderson and Orton Brothers will continue their experiments for another year. A. L. Enugdahl and W. H. Paulhamus, at Sumner, have consented to co-operate with the experiment station. J. H. Friedley and Mr. C. Campbell will also conduct co-operative spraying experiments at Puyallup. It is the station's plan to arrange for as many experiments as possible, and aid anyone who is interested in the solving of the problem of controlling anthracnose.—The Puyallup Tribune. ♦ ♦ ♦

#### Blanchard Writes Book

**TWO DOLLARS PER HEN** is the title of an interesting little work written by Professor Blanchard, of poultry fame, in which is told the whole story of raising chickens from hatch to market. Every chapter is a fund of valuable information, and in its pages you will find facts on incubators, concerning the advisability and the disadvantages of using them; also how to control the moisture and ventilation, a most useful knowledge. Other pages are devoted to the diseases and complaints that the hen and her babies are heir to, and still others are directed to helping the poultry raiser sell his chickens, telling him when to sell and under what conditions. And the important subject of marketing eggs and increasing the production of same, with hints of laying homes for them and scratching sheds; the best diet and when to exercise; how to get rid of lice; and last of all, how to obtain the top notch price for eggs the whole year round. This, and other information, has been compiled and made into a neat little booklet, which will be sent to any reader of "Better Fruit" on request, if they will write to The Charles H. Lilly Company of Seattle. Their annual Seed Catalogue is also ready for distribution, and will be sent free on request, together with Blanchard's booklet.



## KIMBALL CULTIVATOR

PRICE \$16

F. O. B.

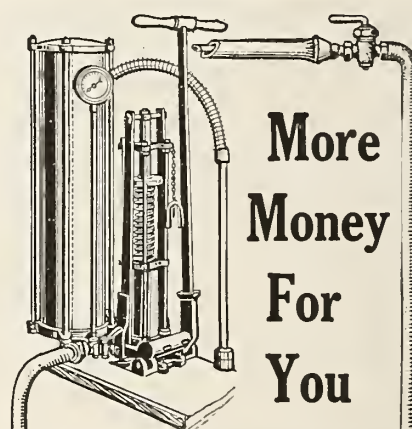
Is the one to use in all feet wide, very easy to which prevents striking No hoeing of trees where used on it in orchard, fern, pink, sorrel, oats, thistle it has no equal

orchards. It is 8½ guide, has a fender the tree with knife, used. Two horses or for destroying briars and Canada



In using this implement the driver will stand in center of board, over knives, and to guide it will step to right or left, as occasion requires, and if anything should catch or gather on the knives the driver will step forward on draft board, tilt the handle forward, raising the knives, so that anything that has gathered on them may free itself. Keep all of the burrs tightened, and should any of the knives get bent out of shape force them back to place without removing them from the frame. Manufactured by

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Greater productiveness of trees—larger, cleaner, and finer fruit—more money. Isn't that fruit growers' reasoning? Nothing will contribute to this end more than effective spraying. And **Effective Spraying** can best be attained with

## Bean Magic Spray Pumps

Effective spraying means **High Pressure Spraying** and till the advent of the Bean Magics a high pressure could not be maintained with a hand pump for any length of time, on account of the body-racking effort needed to operate it. The Bean patent spring divides the work between the two strokes of the handle and works against only one-half the pressure shown on the gauge and saves exactly one-third the labor.

Our illustrated catalog No. 21 describes ten sizes of hand pumps, and contains much valuable spray information, and formulas. Catalog No. 22 describes Power Sprayers. Both books sent free. Write for our special offer; state number of acres and kind of fruit.

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holds the World's record because it has proven itself the best

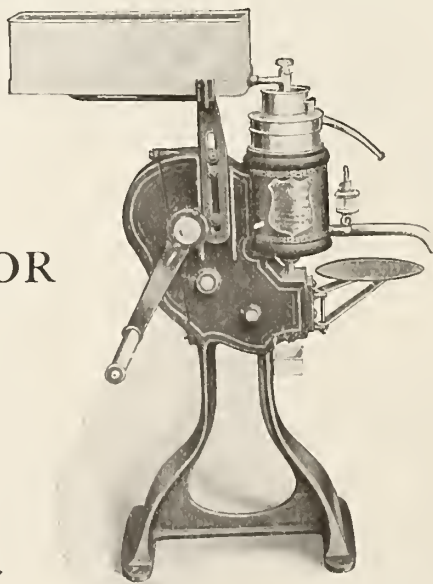
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Every separator is sold under the Hazelwood guarantee and on easy payments

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## STRAWBERRIES

Potash fertilizers produce fine and solid berries that ship well and reach the market in condition to command the top prices. Make generous applications of commercial fertilizers and buy a brand containing from 9 to 12 per cent. of pure Potash.

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## RIGHT SPRAYING REQUIRES AN EFFICIENT POWER

The thoroughness with which you spray depends largely on the power. Prepare for doing the work right by securing an outfit with an

### I. H. Co. Gasoline Engine

Applying the spray mixture with little force cannot be effective. International Harvester Company Famous spraying outfits furnish all the power you want. They drive the spray mixture into the covered and hidden places. The force brings the poison home to leaf rollers, the codlin moth, plant lice, and other parasites, so that when you have finished spraying, you have really accomplished something.

Famous spraying outfits include a number of different styles. There are powerful 2-horse power vertical engines, both water cooled and air cooled, mounted with force pumps on skids; small 1-horse-power air cooled engines with pump and spray tank mounted on four-wheeled truck; or engine and pump mounted together on platform only, etc.

If you prefer, you may buy the engine and mounting and then connect to it any one of several makes of spraying pumps for which the pump connections are arranged. I. H. C. engines can be used with all makes of pumps.

If interested in spraying, look into the I. H. C. engine and the efficient Famous spraying outfits.

You can buy a Famous spraying outfit and use it during the spraying seasons, and during the remainder of the year your engine can be used for general farm purposes for operating many of the small machines—grinder, fanning mill, bone cutter, sheller, churn, separator, washing machine, etc. The I. H. C. line includes, besides spraying engines, many other styles and sizes, as follows.

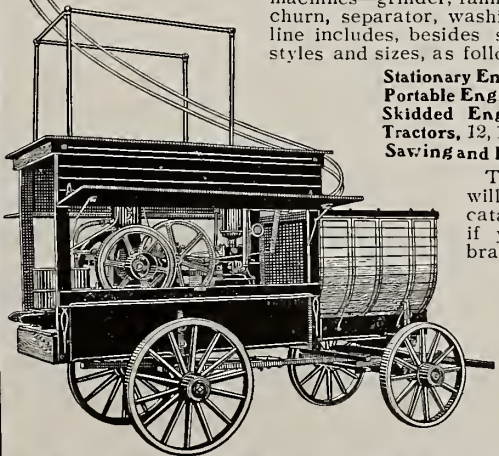
**Stationary Engines**, from 2 to 25-horse-power  
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**Tractors**, 12, 15, and 20-horse-power  
**Sawing and Pumping** outfits.

The International local dealer will be able to supply you with catalogs and full information. Or, if you prefer, write to nearest branch house.

#### WESTERN BRANCH HOUSES:

Denver, Colo.; Helena, Montana;  
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Salt Lake City, Utah; San Francisco, Cal.

**International Harvester  
Company of America**  
(Incorporated)  
Chicago, U. S. A.



## COMMON DISEASES OF DIFFERENT BERRIES

BY M. E. HUNTLEY, MOUNT VERNON, IOWA

### Anthraxnose

THIS is one of the most serious troubles which raspberry growers meet, and it often injures the crop to the extent of fifty per cent before it is realized what the disease is.

It attacks the canes, which become cracked, scaled and discolored about the lower part. Canes so affected cannot produce healthy, well developed fruit. The juices of the cane are so sapped that it often dies prematurely.

It is well to watch the field, and where the first hill is affected, destroy it by digging out and burning it entirely. If left unhindered it will gradually spread until the whole patch is affected.

The best treatment is to spray with Bordeaux mixture, first removing all rubbish about the roots, that the fungicide may reach as low as possible.

This does much good, though it cannot be claimed to be a perfect cure.

If the plantation is only three or four years old and not badly infested, it will pay to spray it. This should be done in the fall, after all the old wood is removed. Again, and more important, apply just before growth starts in spring, and again after bloom falls.

If the field is old, seven or eight years, better plow down and grow some other crop for a few years.

### Gooseberry Mildew

The gooseberry is an important crop, more so than is imagined by those who have never grown it. Near large markets it is profitable, consumers taking it from the growers' hands at satisfactory prices.

The varieties usually grown, or the American gooseberries, are smaller than the English, but they bear more abundantly. Such sorts as the Houghton and Downing are very prolific. And the Pearl, which is possibly a sprout of the Downing, is also good.

The larger the berry, as in the Chautauqua and Industry, the less they bear.

One great trouble with the large gooseberry is that the bushes mildew badly in this climate. The same disease troubles the currant to some extent.

Flowers of sulphur is the most effective remedy for this trouble. Two ounces to six gallons of water and use promptly.

When it happens, as is the case now, that canners stand ready to contract for all the gooseberries they can secure at good prices, it will be profitable to do all in our power to safeguard the crop.

### Aphis

The aphis, or lice, are one of the most provoking plagues the fruit man has to deal with.

They will appear suddenly, great colonies of them, on the plum shoots, on ornamental plants, on grapes and on cucumber vines. In some cases they destroy tender twigs, and always check the growth.

The three remedies are tobacco infusion, kerosene emulsion and whale oil soap. For the tobacco get waste from cigar factories (or grow a few plants in your garden). Boil in water long enough to make a dark liquid. Spray the affected parts. Where the lice are concentrated on the ends of twigs, dip

the twigs in the solution. Sometimes it is profitable to cut and burn the limbs.

Make the kerosene emulsion by boiling a half pound of soap in one gallon of water. While hot add two gallons of kerosene and churn briskly for five minutes. This will kill the lice and all other sucking insects and most of the scale insects. To the emulsion as prepared above add nine parts of water to make proper strength.

The whale oil soap is a little more expensive than the two remedies stated above. It is a prepared soap, which may be secured from numerous advertisers.

#### Strawberry Rust

This disease is widely distributed, being found to some extent wherever this fruit is grown.

Some varieties are more susceptible to it than others. Indeed, some of the most promising seedlings ever produced have been discarded because of their weakness in this direction.

The first symptom is a spot upon the leaf, red or brown, which spreads until the entire leaf is discolored. This finally involves the whole plant and the whole of the weak variety, and spreads to others, until the whole field may become brown in September.

The effect on the fruit when the disease starts early in the year is to make it small, abortive, knotty and insipid. A few of the first berries mature, but the bulk of the crop is worthless.

The first step in fighting this trouble is to plant the varieties which are most nearly immune. This is wise for the amateur. But many growers feel obliged to grow some choice varieties which suffer from it. In that case the Bordeaux mixture is to be used twice—when growth begins in spring and again after bloom falls.

The next thing is to cut over the bed and burn all the leaves and rubbish immediately after the crop is harvested. It may be raked to one side of the field and burned, or raked into the picking paths and burned some windy day when the fire will pass over so quickly as not to injure the crown of the plants.

The usual 4-4-40 formula should be used. The lime is used for its chemical action upon the sulphate, and they must not be mixed until ready to use. Put the copperas in a sack and suspend in water in a wooden vessel.

The lime being slaked, should be kept in another vessel, and just as used both may be put in a barrel of water and thoroughly mixed. Always be careful to keep the same proportions, 4-4-40, or near to it. A little more water will sometimes do.

#### New Diseases

From time to time new enemies of plant life appear. There is no standing still, and changing conditions bring new insects and new diseases. It may be that an insect but little known or noticed suddenly looms up as a supreme nuisance. One rule seems to hold good. Let the chosen food plants of a certain insect be vastly increased by cultivation and the insect will increase in proportion. A case of this is shown in the plague of rose bugs from which Eastern grape growers are suffering.

But also new diseases develop in the plant world just as they do in the animal world. A case in point is a rot of strawberry plant roots, not very widespread

## DO YOU USE TANKS FOR ANY PURPOSE

If so, you are not justified in buying until you have seen our catalogue. Write us today for delivered price on your requirements

Grays Harbor Commercial Co.  
WHITE BLDG. SEATTLE, WASH.

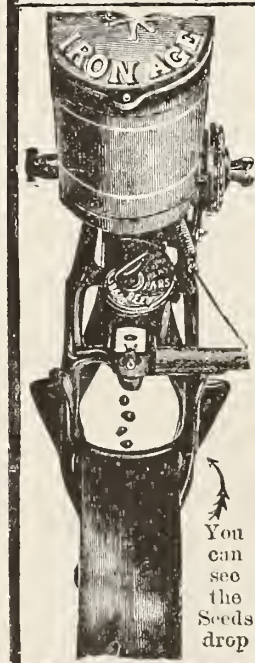


FLAT HOOPS-IRON DRAW-LUGS

# 9 TOOLS IN 1 THE IRON AGE

TRIM  
STOUT  
QUICK

LIGHT  
HANDY



## GARDENING IS A DELIGHT

with this convenient tool, the No. 6 Combined Double and Single Wheel Hoe Hill and Drill Seeder. The cost is almost nothing. It seems almost unbelievable you can get so perfect an implement—the best ever devised—for so low a price.

## STRONG AND CONVENIENT

Runs either single or double wheel for hoeing, raking, cultivating, plowing, hill seeding, drill seeding, etc. Simple to adjust. Nothing to get out of order. Arch is high enough to work astride of 20-inch plants. Simple handle adjustment, to suit height of small boy or tall man.

Greatest range of variety of seeds can be sown with IRON AGE drill. Distributes small packets with same uniformity as large quantity. Brush agitator. Tool changes instantly from drill to hill or reverse. Drops seeds in hills 4, 6, 8, 12 or 24 inches apart.

### SEED IS DROPPED IN FULL VIEW

You see the seed as it passes out of spout into furrow, so there can be no mistake about its actually being sown. Sowing instantly stopped by quick cut-off. There are more good points to the IRON AGE No. 6 than could be told of in a full page advertisement. IRON AGE tools are displayed by our agents. Illustrated descriptive material sent free on request. Write for it.

# R.M. WADE & CO

Old Established-IMPLEMENTS & VEHICLES Up to Date  
PORTLAND, OREGON.

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The entire IRON AGE line is sold by our agents. If there is no agency in your town write us

# First Cost the Only Cost

Look to the future when you buy your wagon and buy it once for all. For the same money you would pay for a good wooden wagon you can get

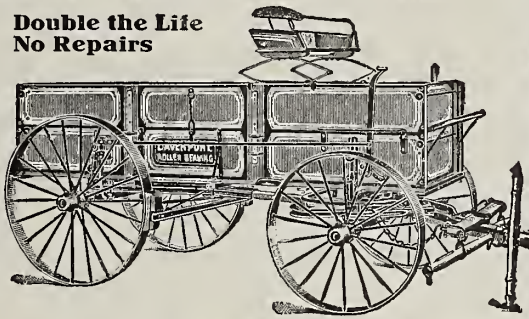
**Double the Strength  
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It is practically all steel—trussed steel wheels, steel gears, steel hubs like the modern automobile—nothing to dry apart or get loose.



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Make 30% to 50% Lighter Draft

This is the greatest advance ever made in wagon building. They are dust, sand and water-proof. Need oiling only occasionally, oil without removing wheels.

Don't buy a wagon till you know all about the Davenport Roller-Bearing Steel Wagon. Let us show you why it's the only wagon you can afford to buy. Send for free Catalog y and do it today, before you forget.

**Davenport Wagon Company, Davenport, Iowa**

as yet, fortunately, but which is noted in places and cannot be explained by local conditions.

New forms of blight appear, or a blight attacks plants supposed before to be free from such trouble.

These new plagues will puzzle for a time, until specialists get opportunity to study them thoroughly, and then some means will be found to fight them.

Mind against matter and its laws will be quicker understood the more obstacles we meet.—Fruitman and Gardener.

## HEATING vs. SMUDGING TO PROTECT ORCHARD

BY T. R. DAVIS, GRAND JUNCTION, IOWA

THE idea has prevailed among fruit growers for some time that smoke over an orchard, produced by smudging, acts as a protective agency. The theory is that the cloud of smoke which is formed over an orchard will prevent a lowering of the temperature, and also, in case of frost, will protect the buds in the morning from a too rapid heating by the sun. This theory, as far as it goes, is well and good, but as a protective agent, smoke has been found insufficient, and fruit growers have of late turned their attention not only to attempts to prevent the lowering of the temperature in their orchards, but have devised methods for actually raising temperatures from five to eleven degrees. To this end, orchard heaters have come into use.

The old "smudge" method formed a cloud of smoke, which acted as a blanket over the orchard and lessened the radiation of the warm air near the ground, and, as a consequence, prevented to some extent a fall in temperature. The more recent orchard heaters not only raise the same cloud of smoke, which has been found beneficial, but does more, and therefore is a greater protection. By the burning of either oil or coal in these orchard heaters, the temperature can actually be raised from five to eleven degrees, thus keeping the orchard, except under very exceptional conditions, out of danger.

These orchard heaters have been tried in a limited way in a great many fruit districts, and will, no doubt, become a more important agent in fruit protection as their efficiency becomes better understood.

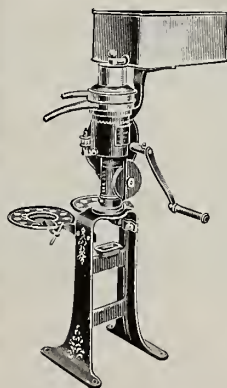
They will be found to be a reliable and inexpensive form of insurance, which no fruit grower can afford to do without, for no country has yet been found in which there can be absolute security from frost.

◆ ◆ ◆

THE Northwest Fruit Association of Albany has completed the packing of the prune crop for last season. About seventy carloads have been sent to Eastern states. The output was much larger than at first expected.

◆ ◆ ◆

Almost the whole world knows of Hood River as a place that produces the best fruits, and all of Hood River Valley should know, and could know, that there is one place in Hood River, under the firm name of R. B. Bragg & Co., that the people can depend on getting the most reliable dry goods, clothing, shoes and groceries at the most reasonable prices that are possible; try it.



### Simplex Separator

The Improved "Simplex" Separator should appeal to every intelligent and discriminating dairyman or farmer:

1. Because it is the most efficient and gets all of the fat that can be obtained from the milk by any process.
2. Because it is Self Balancing, and will not give trouble as other machines do.
3. Because it is the lightest running and can be operated by any member of the family.
4. Because it is the simplest machine, having the fewest parts.
5. Because it can skim cold or warm milk, and will not clog up.
6. Because it embodies all of the latest ideas and patented features that will keep it in the front rank for many years to come.

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THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

**WRITE US**  
for tip on how to put  
**COLOR ON FRUIT**  
and make it a  
**LONG KEEPER**

Certain Fertilizers with certain Soils—that is the Secret—and we speak from  
**TWENTY YEARS' EXPERIENCE**  
with Pacific Northwest soils—experience that means dollars for the Fruit Grower

**WE KEEP ALL COMMERCIAL FERTILIZERS**  
**POTASH** Muriate Sulphate  
**BONE MEAL BLOOD MEAL**  
**TANKAGE**  
All our Analyses Guaranteed

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Spraying Materials for all Purposes and ALL SEASONS—ready to use at once, only needs diluting. We keep Scalecide, Lime & Sulphur Solution, Arsenate of Lead, Whale Oil Soap, Quassia Chips, etc., etc. **JUST OUT**—Write for our new No. 20 Catalogue.

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Circulars and price list free on application  
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## PLANTING AND CULTIVATION OF RASPBERRIES AND BLACKBERRIES AND THEIR MARKETING

I HAVE planted some fifty acres of berries at Monroe, Washington, of which thirty-five are in bearing, and during the past year harvested about nine thousand cases. My desire and expectation was to produce a better and harder class of berries than had heretofore been offered for shipment. In this I have not yet succeeded to my full expectation and satisfaction, but perhaps beyond that of my friends.

There are two general methods of planting raspberries and blackberries in vogue on the western coast, known as the hill and continuous row. In the hill method the berries are grown in rows from four to seven feet apart each way. The continuous row is in rows from five to eight feet apart, and the plants practically continuous, usually from a few inches to a foot apart. In the hill method we use a stake for each hill, and

thin our plants to about six canes per hill, tying tightly to stake, while in the continuous row posts are set from sixteen to twenty feet apart, wires strung thereon and the plants tied to the wires.

I believe the hill method will average a little less in yield than the other system, but with it we are enabled to cultivate both ways with a horse, and avoid the more expensive hand cultivating. It also enables the pickers to work on all sides of each hill, thus better cleaning the vines of all ripe berries at each picking, besides allowing a more free circulation of air, light and heat, necessary to the production of a good shipping berry.

Raspberries should be picked when they are turning red. They will color and ripen in twelve hours and will have as fine a flavor as if allowed to remain on the vines until entirely ripe. They



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OUR Spray Mixtures are always ready for use by adding water. They are the best and cheapest—no dirt nor bother in mixing; no waste; thousands of pleased customers.

Catalogue describing fourteen different prepared Spray Mixtures, also Spray Pumps and Canning Outfits manufactured by us, and illustrations of various insects and pests, which are so destructive to fruit and vegetable crops, mailed free.

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For the Destruction of the Codling Moth and All Leaf-Eating Insects, Use Grasselli's Arsenate of Lead



CODLING MOTH

Grasselli's Arsenate of Lead is manufactured only by The Grasselli Chemical Company, established 1839, General Offices, Cleveland, Ohio. When applied, ordinary rains will not wash it off. It is not injurious if applied unskillfully or in too great quantities. Grasselli's Arsenate of Lead can be used successfully against all leaf-eating insects, including the Codling Moth, Canker Worm, Elm Leaf Beetle, Potato Bug, Gypsy and Brown-tail Moth, etc. Grasselli's Bordeaux Mixture—a preventive of all fungous diseases. Grasselli's Bordeaux-Lead Arsenate Mixture—an insecticide and fungicide combined in one effective article. Write for descriptive booklet, giving information how and when to spray.

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should never be picked when wet or damp, nor packed nor picked for shipment during the extreme heat of the day. If picked when warm, berries should be allowed to stand in picking trays in the shade for a few hours before packing. The morning pick is the best long-distance shipper.

A rigid inspection of vines should be made by the field boss, to see that no

berries are overlooked, to be picked over-ripe at the next picking, a few of which will spoil an entire case and may lower the grade of the entire shipment. The packer at the receiving shed should examine each tray delivered by the pickers and frequently invert a cup taken from the tray to see that the berries at the bottom of the cup are as well picked as those on top. Display on your receiving counter a cup of well picked and well filled berries, and call attention of all pickers who fall below the standard to it.

As soon as berries are picked and cased they should be taken to the express or freight office for shipment, even if the train will not be due for some hours. Unload on a truck in the shade, in such a way that there will be ventilation between the cases. An easy spring wagon or buggy to transport them to the station is essential, and always cover with a canvas to shield from the sun and dust. You cannot refrain from telling the receiving agent that your berries are in fine condition and requesting that they receive careful

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Can your fruits and vegetables the same as large canning factories. Your investment will be small and profit large. The STAHL CANNING OUTFITS are the best and cheapest, made in all sizes, fully guaranteed. Thousands in use. We start you out with everything needed to make a complete canning factory on the farm.



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Catalogue describing Canners and telling how to market canned goods to the best advantage, sent free on request.  
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**PLANTS** and roots of all description, ornamental and vegetable.

**SPRAYS** for winter and summer, put up in the most convenient form.

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When you get to Hood River  
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Trains stop directly in front of  
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Automobile Service Daily for  
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of July, August and September

and proper handling in loading; then go home—never wait to see the products of toil and painstaking labors turned on their ends to read the marks, dropped from eight to twelve inches to the floor of the car when finally loaded, causing them to bleed and reach their destination in bad and often in worthless condition. The average agent cannot prevent such work and the conductor will not, as he has but one motive and object, and that is to reach his destination in the quickest possible time.

On account of poor handling in loading and unloading I have lost many valuable shipments, and on account of such improper handling am obliged to use pony refrigerators to points where cases should be shipped with proper care.

Commercial berry growing should be done in communities, so that a union or association can be organized, whose officers can more intelligently attend to the details of distributing and shipping than can the individual. Communities growing any considerable number of berries can be assured of the location of a cannery to care for their surplus and soft berries. Such berries sold to canneries this season averaged well with shipments to local markets. I have no doubt but what in the immediate future large plantations of these berries will be planted exclusively for canning purposes. The writer has visited the various states growing raspberries and blackberries, and none produce a berry of as fine flavor, large and in such variety as are now being grown in Western Washington.—Read before the Northwest Fruit Growers' Association.

## Stranahan & Clark

DEALERS IN

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Land Plaster, Lime  
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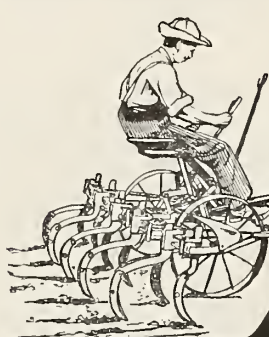
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A boon to every orchardist, grape-, and hop-grower! Particularly adapted to your work. Equipped with attachments which cultivate, furrow or hoe at any desired depth. Three sizes working up to 7 ft. 9 in. wide at one passage.

Has a side-hitch and fruit-tree shield. Can be equipped also as a disc-cultivator. Low wheels enclosed by frame: steel tongue, strong construction, adjustable for depth and width of cut. Easily handled. You need the Planet Jr. to get the most profitable yield. Fully guaranteed.

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Is a stimulator of plant growth.

Is a source of lime as plant food.

It renders available plant food already in the soil.

Is a direct antidote for "black alkali."

Encourages the development of bacteria connected with legumes and thus becomes a specific for increasing the yield of clover, alfalfa, vetches, beans, peas, etc.

Is a preservative of stable manure, preventing losses.

Is an invigorator for the soil.

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Giving a GOOD LABEL the  
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Successful Orchardists use the  
**BEST LABELS** on their fruit.  
Your Fruit will command  
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GASOLINE  
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Fruits of High  
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Carries high pressure without the usual vibration or strain, and is the most practical, durable and economical machine ever built for spraying. Use your own running gear if you prefer. Write us today for Spray Catalogue No. S-8



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Sizes Fruit accurately, rapidly and enables the practical Grower to put up the Commercial pack for the Fancy Trade. Live Agents wanted in every fruit district throughout the world.

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**IN ALL  
STYLES**



**The IDEAL  
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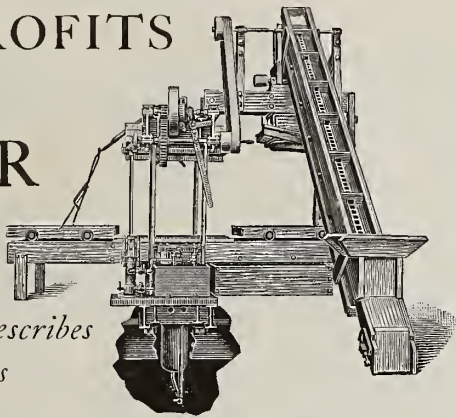
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Capacity, 10 to 400 barrels per day. Made in all sizes, hand or power

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Write for any information desired. We can show you how \$1,500.00 clean profit can be made.

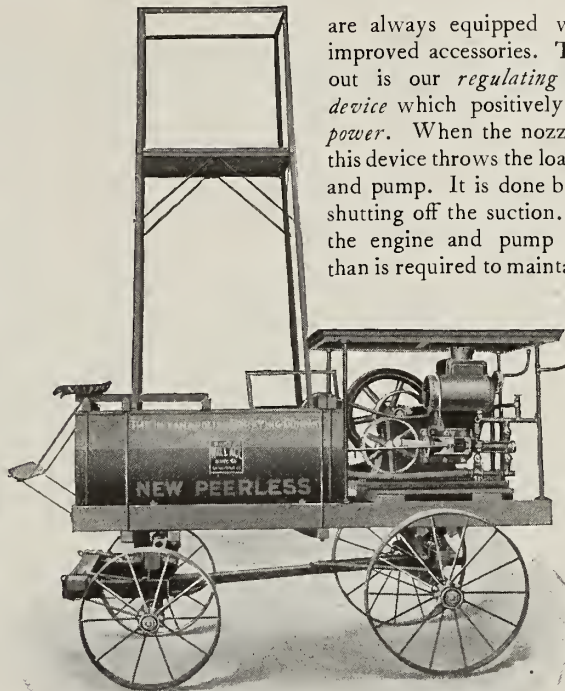
## The Hydraulic Press Mfg. Co.

Largest Manufacturers of Cider Presses in the World

60 LINCOLN AVENUE

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## WALLACE POWER SPRAYERS

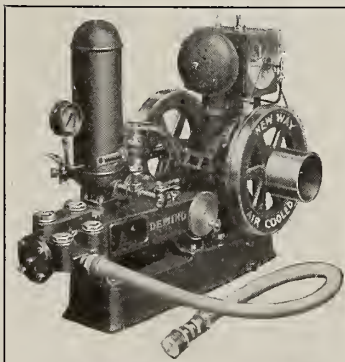


are always equipped with the most improved accessories. The latest thing out is our *regulating and unloading device* which positively *saves half the power*. When the nozzles are shut off this device throws the load off the engine and pump. It is done by automatically shutting off the suction. The load on the engine and pump is never more than is required to maintain the pressure on whatever number of nozzles are used. Consequently our machines work under the minimum load all the time, instead of under the maximum load as others do.

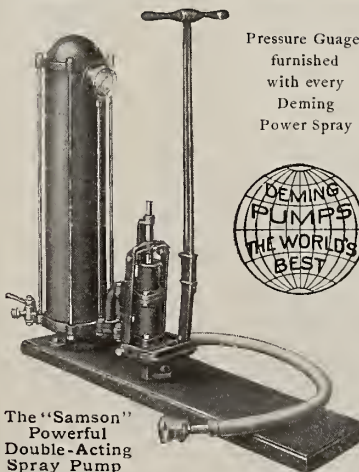
New Peerless  
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Our New PEERLESS SPRAYER shown above was the wonder of the National Apple Show, Spokane. It maintained a constant pressure of 200 to 220 lbs. with less than half the usual power. Better get informed about this. The device is applicable to all kinds of sprayers

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2½ or 3½ H. P. Gasoline Engine  
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The "Samson"  
Powerful  
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Spray Pump

Pressure Gauge  
furnished  
with every  
Deming  
Power Spray



## TO GET RID OF THESE *Use Deming's Sprayer*



GOOD Spray pumps insure good fruit, but few pumps are *really good*. Too many manufacturers desire to turn them out for price alone—caring nothing about their work afterwards. Poor grades of brass are too often used, and very sparingly at that. Result—the user is out his purchase money and his pump, after a short service. All Deming Sprayers have either solid brass or heavy brass-lined working parts that insure years of usage. They are built for service—and they give it, as thousands of users will testify. Ask for our handsome 1909 Spray Pump Catalogue with 12-page spraying chart, giving remedies and directions about spraying. A copy of "Spraying for Profit," a valuable guide book on spraying, will be sent also on receipt of four cents in stamps to cover postage.



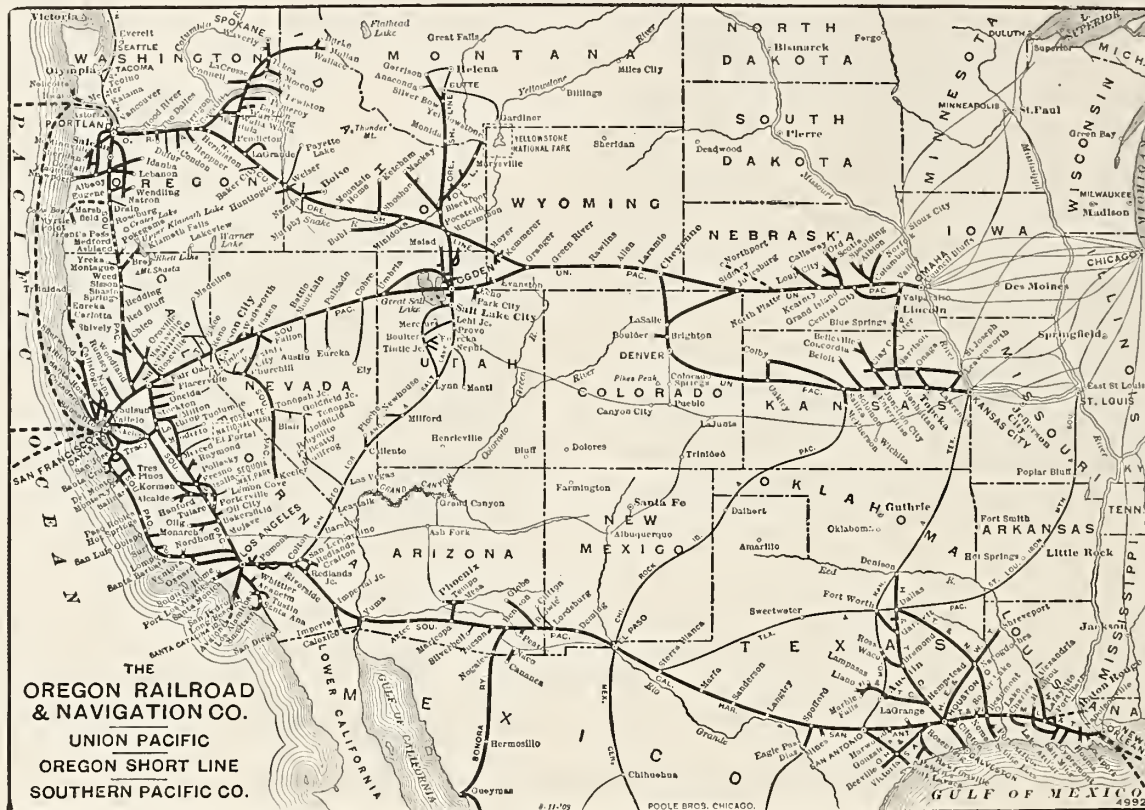
"Universal  
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Spray Pump and White-washer. Furnished with several attachments which make possible a number of varied uses. Best general purpose spray pump made.

THE DEMING COMPANY  
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GENERAL AGENCIES IN ALL WESTERN CITIES

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In co-operation with the commercial organizations of the Pacific Northwest have issued a series of interesting pamphlets containing full, accurate and dependable information covering this attractive section.

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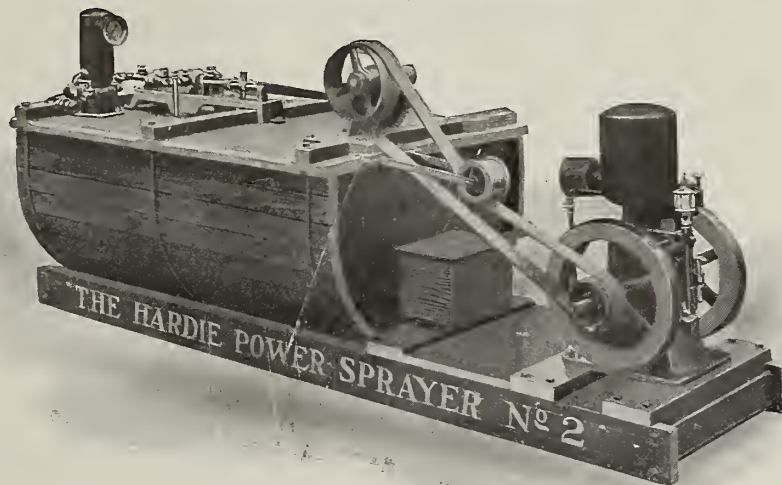
*Tickets can be Prepaid by applying to any O. R. & N. or S. P. Agent*

**WM. McMURRAY, General Passenger Agent, PORTLAND, OREGON**

# The "Hardie" Sprayers

PORTLAND, OREGON

*Nothing  
to  
Watch  
but the  
Spray*



*The  
Sprayers  
with the  
Trouble  
left out*

**WEIGHT 700 POUNDS**

**LENGTH 8 FEET**

**PRICE \$200**

The IDEAL machine for small orchards or where the land is hilly. This machine is equipped with everything to make it practical and convenient—Nozzle Protector, Relief Valve, Belt Tightener, Pressure Gauge, All-Brass Pump which is easy to repack; has Brass Ball Valves so arranged that they can be easily got at, Swinging Agitator, etc., etc. The engine is designed especially for the sprayer, is light, strong and compact; cools with two gallons of water. **EASY TO START, EASY TO OPERATE.** This machine will maintain a pressure of 150 pounds, discharging about 250 gallons per hour.

**Gasoline Engines  
Spray Hose, Spray Rod  
Spray Nozzles  
Spray Tanks  
Hand Pumps of Every  
Description**

## The "Hardie" Triplex Power Sprayer

Is made in two sizes, A and B. Triplex A has 2½-inch plungers with 2¾-inch stroke, and has a capacity of eight to ten gallons of liquid per minute under a pressure of 200 pounds. It is driven by our 3-horsepower engine. This engine is connected to the pump by a sprocket chain. The tension on the chain is controlled by a chain tightener and the speed reduced by gearing on the engine. The size of the suction and discharge, the size of valves, plungers and air chamber, and the strength of crank shaft, plunger rods, base and frame are such as to render it safe to work under very high pressure and give the machine very large capacity.

**TRIPLEX B** has the same construction, except that it is belt driven and has 2-inch plungers and 2¾-inch stroke, and may be operated by our 1½-horsepower engine, giving a capacity of four gallons per minute at 200 pounds. When driven with our 3-horsepower engine a pressure of 200 pounds is easily maintained, giving a capacity of seven gallons per minute.

Both outfits are equipped with everything to make them complete. The best grade of hose, with our special heavy brass couplings; nozzles of any pattern, aluminum-lined bamboo rods, rubber drip guards, "Leakless" stopcocks, tools, tool box, large brass funnel for straining liquids, pressure gauge, etc., etc.

**THE HARDIE TRIPLEX PUMPS** are built for spraying. They are not converted well pumps, but are the result of ten years of practical experience in the manufacture of spraying machinery.

To the orchardist with a valuable crop of fruit, effective spraying adds many dollars to his bank account.

A Hardie Sprayer is a sort of crop insurance policy. Its cost is returned many times the first year by larger crops of perfect fruit.

Its construction is so simple that a child can run it; so strong that it will last for years; so perfectly built that pleased customers have called it "The Sprayer with the trouble left out."

These and twenty other styles of Sprayers are built in our own factories at Portland, Oregon, and Hudson, Michigan.

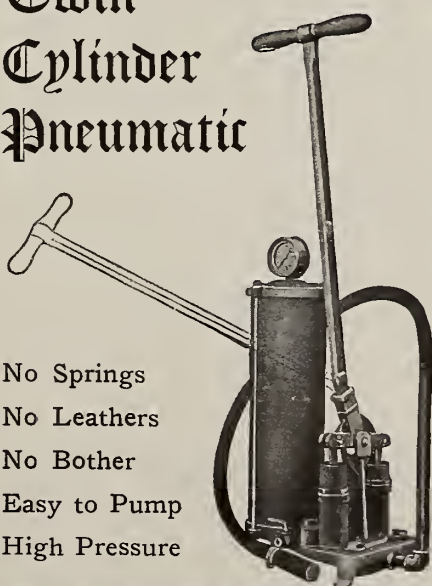
Our catalogue tells all about them. Send for it today.

## THE HARDIE MFG. CO.

Hudson, Michigan

22 Front Street, Portland, Oregon

**Twin  
Cylinder  
Pneumatic**



**No Springs  
No Leathers  
No Bother  
Easy to Pump  
High Pressure**

# White Salmon Valley

## WASHINGTON

*Across the Columbia River from HOOD RIVER VALLEY, OREGON  
in The Banner Apple Belt of the World*



*The City of White Salmon, at the entrance of the White Salmon Valley, showing the North Bank Railroad and the Columbia River*

The WHITE SALMON VALLEY today presents OPPORTUNITIES FOR INVESTMENT beyond that of any other FRUIT REGION in the Northwest. It is the north half of a LARGE VALLEY lying between Mount Adams on the north and Mount Hood on the south. The mighty Columbia flows between and divides this valley. From the Columbia River to Mount Hood forms the Hood River Valley, and from the Columbia River to Mount Adams forms the White Salmon Valley. Both these mountains are snowclad all the year and influence the climatic conditions. This, together with a volcanic ash soil, produces apples that are superior to all others in the world in FLAVOR, SIZE, COLOR, and, most important of all, KEEPING AND SHIPPING QUALITIES.

Ninety per cent of the fruit grown in this valley is exported, bringing the highest market prices.

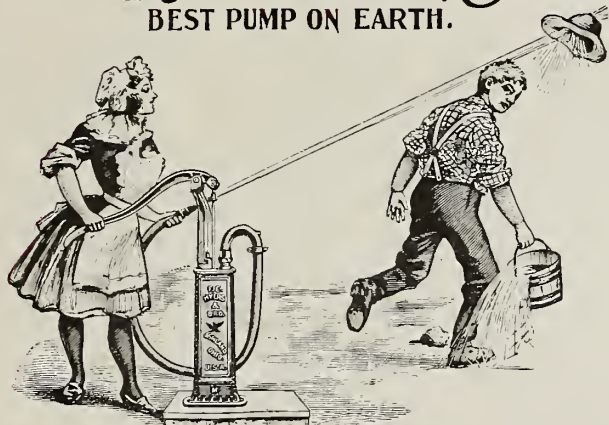
THE CLIMATE of this region is ideal. It is located in the midst of the CASCADES, with a pure mountain air and free from excessive rains or drought. The snow-covered peaks at either end of the valley temper the heat of summer and make the summer nights cool and invigorating. The winters are as a rule mild and short. The scenery is as fine as may be found anywhere on the continent.

The valley has been held back heretofore through lack of railroad transportation, but the SPOKANE, PORTLAND & SEATTLE RAILROAD, part of the Hill system, now in operation, gives this valley the best of shipping facilities.

NOW IS THE TIME TO SECURE A CHOICE ORCHARD TRACT AT A LOW FIGURE. Write today for particulars of this wonderful valley to the

**White Salmon Valley Development League**  
WHITE SALMON, WASHINGTON

Take off your Hat to "The Myers!"  
BEST PUMP ON EARTH.



## Why Do Fruit Raisers Consider the *Myers* the *Superior Spray Pump*?

This question is one that is asked quite frequently and there seems to be but one answer, the pump that is endorsed and used by the leading orchardists and fruit inspectors of the Northwest *must be* the superior pump. At any rate we have never seen or heard of a pump better adapted to the needs of the Northwestern fruit grower than the

*Myers* and if we ever do you may be sure we will be selling that line. *The Myers Spray Pumps* are especially adapted to the handling of caustic spray mixtures. They are durably made and capable of withstanding conditions that send others to the scrap heap in half the time. The high pressure spray pumps are very easily operated and are capable of maintaining very high pressures. There is a *Myers Spray Pump* made to meet every condition, the line is so extensive that it often seems difficult to make a selection among the many different styles. These pumps are so protected by patents that it is an utter impossibility for any other manufacturer to turn out as good pumps or pumps that have as many exclusive features. IT WILL PAY YOU TO INVESTIGATE THE MYERS

*Have you received a copy of our Fruit Grower's Catalogue? It's free and it's worth sending for*



PORTLAND  
Oregon  
SPOKANE  
Washington  
BOISE  
Idaho  
SALEM  
Oregon

# Profit by Experience!

*Members of the Produce Reporter Co. are better equipped to do successful selling or consigning business than non-members*

Organization is the keynote of success in this hustling day. Organization — national — of produce and fruit dealers is peculiarly necessary. It is an adaptation of the *local* idea. It is proportionately profitable. No shipper can afford to deprive himself of the co-operative service so easily to be obtained. Let the Managers tell you all about it.

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34 SOUTH CLARK STREET

CHICAGO, ILLINOIS

# Steinhardt & Kelly

101 Park Place, New York, N. Y.

*The largest and most extensive fruit concern in the world  
operating in all the fruit growing sections of the civilized globe*

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## Exclusive Purveyors of High Class Fruits

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THE VERY FIRST CONCERN TO  
EXTENSIVELY INTRODUCE THE  
**OREGON APPLES**  
TO THE CONSUMERS OF THE EAST

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*Sole importers into the United States of fresh fruits, both out-  
door and hot-house, from Asia, Africa, Europe, Australia*